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ORIGINAL ARTICLES.

A CASE OF EPILEPSY WITH DOUBLE CONSCIOUSNESS.

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"DOUBLE consciousness" being regarded by most writers as a strange phenomenon, especially when associated with epilepsy, the following case is deserving of a short report. I regret that the history of the case is somewhat meagre, but I will give the data as completely as possible.

The patient is a German, male, aged fifty-two years, admitted February 3, 1888—his second admission to the hospital. He is about 5 feet 8 inches in height, weighs about 150 pounds, and is thick-set, and very muscular. All of his toes have been lost, and his fingers more or less disabled by frost-bite. He has been subject to epileptic convulsions since 1862, and was first attacked while working on a transatlantic steamer, where he was a stoker. He thinks that the disease was caused by the intense heat to which he was exposed. There is no family history of epilepsy or of any other nervous affection, and no record of insanity. The epileptic attacks are of a most violent nature (*grand mal*), and occur about once every month or six weeks. He then has from three to six convulsions, and never during the time he has been in my charge has he had single convulsions in the intervals. For several days preceding the convulsions he complains of pain in the left inguinal region, and says that it is "due to a fall he had when on board ship." There is no evidence of anything abnormal in this region, and I regard the pain as an aura, as he never complains of it except just before the attack. Shortly after this aura (from twenty-four to thirty-six hours) he has a convolution, and on recovering from this becomes somewhat irritable and sullen. Other convulsions follow until he has had from three to six. His irritability and sullenness increase in proportion to the number of convulsions, and he finally lapses into a perfect condition of double identity, the original *ego* being completely destroyed, and during this period of second self it is necessary to place him in seclusion.

The time occupied during the transition from the first condition to the second is from two to four days, varying according to the interval between the epileptic attacks.

During this period of "second self" he becomes very violent and abusive, and can be approached only after being physically overpowered. When he passes into this condition he at first refuses nour-

ishment, but toward the latter part of the period he will swallow if a cup is held to his mouth, though it is necessary to restrain his hands and feet. If left to himself he is, as a rule, comparatively quiet, and, as far as I can ascertain, his sleep is not disturbed.

This condition lasts from five to ten days, and his return to a normal condition rarely occupies more than twenty-four hours, though on one or two occasions it has taken somewhat longer. For some time after the return to his normal condition he speaks in a husky voice, and complains that his throat is sore, and for some days he is abstracted and listless.

When in his normal condition, the man is of a pleasant disposition, and does a great deal of work about the ward. When questioned in regard to his sensations during the periods of "second self," he says he can tell nothing except that everybody and everything is strange to him, and that he knows nothing of what he says or does. But he can describe circumstances and occurrences which took place *before* the development of his "second condition"—*i.e.*, during a previous normal period.

The expression of his face during the period of "second self" is altered, changing from a rather pleasant expression to one of intense anger and hatred. In short, I do not think that Stevenson's "Dr. Jekyll and Mr. Hyde" could be worse than this man, were he given his liberty.

On one occasion, before his admission to this hospital, while in his second state, he was disturbed by his wife, who endeavored to make him eat, and in the paroxysm of rage caused by this he tried to kill her with a hatchet, but was prevented by the timely interference of the neighbors. He afterward said that he had no recollection at all of the matter.

It is difficult to understand the changes in the mind of an individual which produce such a phenomenon as double consciousness, and it is hard to explain how the absolute *ego* can be so completely destroyed for the time being. Undoubtedly the epilepsy is the cause of the transition in this particular case, but how it so overwhelms a man's being as to render his own identity *nil*, is to me unexplainable.

Epileptic convulsions occurring in rapid succession will, for a time, destroy the action of the intellectual centres, and for a short time after such an attack it is common for the person to be either violently excited or correspondingly depressed, but never before have I seen a case in which there was complete loss of identity. Spitzka¹ regards this

¹ Manual of Insanity.

condition as one of extreme rarity, and says, "it appears to be limited to the mental disturbances of menstruation and to periodical insanity." He also intimates that such a condition may occur in connection with primary confusional insanity, in regard to which he says:

"It is noteworthy that a large number of the patients are aware that a change has taken place, that they are no longer their former selves, and they may be able to give—by snatches, it is true—a tolerably fair account of the circumstances preceding the outbreak of the disease. But as the latter develops, the patients cease to recognize their position, or to complain of the 'head trouble,' whose existence they previously admitted, and, at most, they speak of their former selves in the third person, or manifest a confused variety of double consciousness."

In defining double consciousness the same author says:

"This condition is characterized by the alternation of periods, in which the subject enjoys his memory and retains his sense of identity, with others, in which he fails to recollect the impressions of his healthy period, but possesses the faculty of learning new ones. In the next healthy period he recollects what occurred before the abnormal period, but does not reproduce every fact acquired in the other. In fact, the mental life of two distinct individuals seems to alternate in one person."

Savage, in his work on insanity, maintains that double consciousness may be present with epilepsy, and also claims that the condition is closely allied to somnambulism.

A large number of cases of double consciousness presenting interesting facts have, from time to time, been reported, and in all the reports that I have seen the period of the second identity was longer than in my case.

The interesting facts in this case are:

First. The association of epilepsy and double consciousness; and

Second. The almost unvarying periodicity and uniformity of the convulsions and sequelæ.

I may say, in conclusion, that various forms of treatment have been tried to prevent these epileptic seizures, but without success.

A CASE OF GUNSHOT WOUND OF THE HEAD, WITH GREAT LOSS OF SUBSTANCE.¹

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[Reported by B. VAN SWERINGEN, M.D.]

THE patient was a boy sixteen years of age, a native of this country, who on June 8, 1888, while playing with his mates, was accidentally shot in the head. The weapon was an old style Col's revolver .38 calibre, and was fired at a distance of not more than two feet. The bullet entered just above the middle of the right superciliary ridge and passed out through the upper right segment of the occipital

bone, wounding in its course the anterior, middle, and posterior lobes of the cerebrum.

Dr. Crow called me to see the case, and when I arrived, two hours after the injury, the patient was lying on his right side, comatose, bleeding from the points of entrance and exit, particularly from the former, and also apparently from the right ear. He had complete hemiplegia on the left side, but no paralysis on the right. The pupil of the right eye was markedly dilated, and that of the left contracted; there also existed a very slight converging strabismus, which his parents assured me was present before the injury. The patient, of course, presented the symptoms of profound shock, and his death was momentarily expected. However, we shaved his head and joined the openings made by the ball, by an incision about seven and one-half inches in length. Upon separating the edges of wound, we found that the frontal, the parietal, the greater wing of the sphenoid, the squamous portion of the temporal, and a portion of the occipital bones had been shattered; the largest piece of bone that came away being about two and one-half by three inches. We carefully removed all the fragments, following as nearly as possible the rules of asepsis, if not antisepsis. After the numerous fragments of bone had been removed, we found the opening in the dura opposite the point of entrance, and also the wound of exit, which was the larger; these we enlarged, nearly joining them. The track of the ball was easily found, along which were discovered a number of spiculae of bone which had been carried in by the ball. Upon washing these out, at least two ounces of cerebral substance escaped.

We then inserted a drainage-tube from the entrance to the exit, leaving a half inch of the tube projecting in front and behind, closed the wound with catgut, and applied an antiseptic dressing.

His symptoms grew no worse during the operation, and he even showed signs of returning consciousness by wincing from the pain when the sutures were introduced. On the next morning the boy was perfectly conscious and his memory seemed to be perfect. We tested his mental faculties by requiring him to add figures, etc., which he did with readiness in various ways. His memory for events before the accident is seemingly as good as ever, and there is no reason to believe that it has since failed, for he remembers everything from the time he regained consciousness after the operation. After the operation there was present, in addition to the hemiplegia, marked stuttering, which has steadily diminished. This was in all probability due to extensive loss of cerebral cortex.

Two weeks after the injury the boy had a chill, and upon close examination I found a small collection of pus below the wound of exit in the occipital bone. This I opened and drained. Six weeks after the injury a hernia cerebri made its appearance, and became fully as large as my fist. When this was firmly pressed upon, as by a bandage in order to reduce it, coma followed; I, therefore, allowed it to be gradually reduced by the pressure of the head against the pillow.

A small bed-sore was the only other complication,

¹ Read before the Kansas City Academy of Medicine.

but this gave very little trouble. Marked depression and a large cicatrix now mark the seat of the wound. From the point of entrance, about half an inch above the middle of the right superciliary ridge, to the point of exit, about half an inch below the parietal occipital suture, and from the sagittal suture to the temporal ridge there is entire absence of bony structures. At its greatest depth the depression measures a little over an inch.

Sensation in the paralyzed side began to reappear six weeks after the injury, the skin becoming sensitive to pain down to the elbow and to the knee. There is still slight numbness below those points. Motion also developed with returning sensibility, and has been greatly benefited by electricity. In November he made his first attempt after the injury to walk, and he is now able to walk without assistance. The flexor muscles of both the upper and lower extremities are stronger than the extensor muscles. It is difficult for him to lift the toes of the left foot from the ground, and there is an inclination for this foot to catch on the other. When he tries to open his hand to grasp anything the flexors are thrown into a spasm, which causes his hand to close tighter.

His temperature for two weeks after the operation remained between $98\frac{1}{2}^{\circ}$ and $100\frac{1}{2}^{\circ}$. Whenever it rose above 99° an ice-bag was applied to his head.

Regarding the converging strabismus, I am inclined to accept the statements of his parents, that it existed prior to the accident, for I do not see how it would be possible for the fibres of the motor-oculi supplying the internal-rectus to have been injured and the remainder of the nerve escape, and if the entire nerve had been injured the other ocular muscles would have been affected. There may be some difference in the size of the pupils, and I think there is a difference in their response to light, but there is no hemianopsia and the eye-ground seem to be normal.

The boy is now going to school, and is progressing in his studies without evidence of impaired mental faculties. It would be interesting to know whether it is only the left hemisphere that is doing the work. No medical treatment has been employed. He comes to the office so that we may keep the muscles developed and improve their condition, if possible, by the battery.

DISCUSSION.

In discussing this report DR. S. G. BURNETT said that he had seen but one similar case. In that case a man had a drill blown with great force into his head. It entered just anterior to the ear, passing upward and removing a considerable portion of the motor tract. The patient had complete hemiplegia for a time, but recovered with fairly good use of his left side. A peculiar thing in this case was paralysis of the soft palate, which occasionally seemed to drop down and almost strangle the man.

One important and singular point about Dr. Griffith's case is that he had no convulsions. This the speaker could explain only by supposing that the whole of the motor centres was destroyed, so that no irritation could be received by the cortical substance. The boy has the characteristic hemiplegic gait, and that peculiar grasp-

ing of objects followed by inability to relax the grasp, which is also very characteristic. This condition is to be expected, because normally the flexors are more powerful than the extensors.

The stuttering is probably due to incoördination. All authorities claim that the speech-centre is on the left side of the brain, and undoubtedly, if the injury had been on the left side, there would have been complete aphasia. His intelligence is very good, better than we would expect, but just what amount of brain tissue has been removed cannot be estimated. The speaker did not think it possible to have paralysis of the internal rectus without a similar loss of power in all the muscles supplied by that nerve. There could not be complete motor destruction without implication of the third nerve.

DR. B. E. FRYER said that the appearance of the wound seemed to indicate that it was made by a round, instead of a conical bullet; still conical bullets sometimes play terrible havoc, as in this case. The case was very interesting, both surgically and neurologically. Surgically, it is a demonstration of what boldness, with care and activity, will do in these cases, plus the anti-septic methods.

An important point, which is not sufficiently referred to, is that in such injuries spiculae of bone are carried into the brain.

Dr. Fryer had seen the case of a man who died very suddenly while apparently in good health. His duties had required severe work, and he was fairly intelligent. The disease of which he died seemed to be a sudden attack of pneumonia. The speaker's assistant, an accurate observer, made the post-mortem, and found the whole of the right frontal lobe a pultaceous mass, a condition that must have existed for months. This corroborated what Dr. Burnett said in regard to the speech-centre being on the left side; it shows that intellectuality and mentality may not be dependent upon the bilateral working of the brain, for this man had shown no signs of mental failure in the months during which he had been under observation.

DR. JOHN PUNTON said that the case opened for consideration the subject of cerebral localization.

Thomas Hood, of London, in 1822, reported cases and stated that disturbances of speech always accompany lesions of the frontal lobe; this was proven by Broca in 1861, when he definitely localized the speech-centre as being in the lower portion of the third frontal convolution on the left side. Dr. Griffith's case seems to confirm that report.

In 1872, Ferrier made experiments which demonstrated that the anterior portion of the brain is concerned only in motor acts, while the posterior is devoted to receiving sensory impressions, and the case reported seems to support these views also. In the first place there is left hemiplegia; that would, of course, support the theory that the fibres of the motor tract cross to the opposite side. Now the motor zone is situated at, and includes both sides of the fissure of Rolando, for a distance of about an inch, including a portion of the frontal, parietal, and paracentral lobes; that is, the ascending frontal, the ascending parietal and the anterior portion of the superior parietal convolutions. It would seem that all of these parts were more or less injured in this case.

There are at least three different schools of experimental physiologists in cerebral localization. One school is represented by such men as Monk and Ferrier, who believe the brain can be mapped out into definite areas whose limits and function can be clearly defined. Another school, represented by Exner and Luciani, oppose the sharply-defined boundaries of definite areas and claim that they overlap to a greater or less extent. The third school, represented by Brown-Séquard and Golz, of Strasbourg, still support the original view of Flourens that the brain can act only as a whole. Now it is very difficult at times for the student to know which school to follow.

This case seems to overthrow theories that were thought to be conclusively proven.

The cause of the spastic contraction is probably due to irritation caused by the cicatrix at the angle of junction of the superior parietal and ascending parietal convolutions, and if an operation for its relief should be deemed expedient, that should be the objective point, but *any* operation would hardly be warranted.

DR. B. H. ZWART referred to the following case of his own:

In one of the battles of the civil war a man named Stewart lost the upper part of his head, and a considerable amount of brain-substance. For a year following he was confined to his bed, owing to complete paraplegia. This, however, gradually grew better, and he became addicted to the use of liquor, and after an excessive indulgence he became very nervous, and finally, in 1876, convulsions supervened. He died of phthisis some years later. The fact that the convulsions came on so late may throw some light on the future history of Dr. Griffith's case.

DR. B. E. FRYER thought that an injury of this kind does not militate against any of the established views in regard to cerebral localization. It must be remembered that we have not a clean cut through the brain. A conical ball distorts the skull, and lacerates the brain. Moreover, there is a scattering of the bone along the track of the ball. We cannot, therefore, lay down rules except by symptoms, and he thought that the symptoms in this case were definite, and conformed, in the main, to the theories in regard to localization. Again, we have more or less hemorrhage into the brain after such injuries, which further obscures the diagnosis. It is very difficult, therefore, to know to just what extent the brain has been damaged after such an injury as this.

DR. KYGER said that two things in this case struck him very forcibly: one was the boldness of the surgeon in operating while expecting the momentary death of the patient; the other was the value of antisepsis.

DR. FEE said that the question of drainage and of the kind of drainage, whether strands of catgut, or rubber, or glass tubing, etc., was a matter of personal experience. Drainage has been abused. Too large drainage-tubes are left in place too long, and act as foreign bodies.

DR. BURNETT said, in regard to the application of electricity, that the proper way to apply it would be to place one electrode over the back of the neck, moving the other over the body, and using a current strong enough to cause contractions.

DR. PUNTON asked Dr. Burnett if he thought the case would terminate in Jacksonian epilepsy.

DR. BURNETT thought that it would not, because there is so little gray matter left; but as there is some dizziness, and contractions when the boy becomes excited, epilepsy may develop.

DR. GRIFFITH, in closing, said that he had almost decided, that in case marked epileptic seizures developed, to operate on the cicatrix. Whether anything could be accomplished by celluloid implantation, or whether it would be successful, could not be determined. If something of that nature could be done it would be of advantage, by lifting the scalp away from the encephalon. The paroxysms of dizziness under excitement are disappearing.

In reference to drainage-tubes, in this case a tube as large as the little finger was used, and kept in for thirty-two days, but it was kept clean, and was not removed until no débris came from it. For the first two weeks a great deal of broken-down material came away. He thought, however, that the tube was kept in too long, and was probably instrumental in causing the hernia cerebri which developed at the point of exit of the drainage-tube after its removal.

THE SURGICAL TREATMENT OF EMPYÆMA.¹

BY JAMES A. GOOGANS, M.D.,
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SENIOR COUNCILLOR OF THE MEDICAL ASSOCIATION OF THE STATE OF
ALABAMA.

DURING the last eighteen months I have treated six cases of empyæma following pneumonia, all of which have made perfect recoveries. The patients varied in age from three to thirty-five years. I reported the clinical histories of three of the cases in a paper read before the Southern Surgical and Gynecological Association in 1889, and I trust that, in presenting them again in connection with others, they will not fail to be interesting. Besides, every case of empyæma presents its own clinical phenomena, consequently no single line of treatment can be invariably adhered to. It is a disease that any practitioner of medicine is likely to encounter, and with which we must deal promptly; therefore much more valuable information may yet be acquired by carefully studying the clinical history of each case.

The plan of treatment known as the surgical treatment is the one which has always been most successfully employed. Spontaneous cures are so rare that surgical interference is the rule. Powell has well said, and nearly all writers concur with him, that

"the spontaneous disappearance of such effusions is too uncommon to be expected, and the process of re-absorption is one too full of peril to be anticipated with anything but dread; It is indeed an attempt at such absorption that occasions the most characteristic hectic symptoms. Consequently the prognosis is practically hopeless without surgical interference. We must adopt some surgical measures or take upon ourselves the responsibility for a large mortality."

¹ Read before the Southern Surgical and Gynecological Association, November 13, 1890.

There are many modes of operating for the removal of pus from the pleural cavity, but they may be classified as follows under two general headings:

First. The closed method, which consists in removing the pus by simple puncture with a trocar or an aspirator-needle, and allowing the puncture to heal at once. This method was taught in the school of Hippocrates and described in the writings of Galen, but, until quite recently, was practised only as a last resort.

Second. The open method, which consists in making a more or less free incision and the introduction of a drainage-tube to maintain the perfect evacuation of the fluid, to permit irrigation, and to promote free ingress and egress of air that has passed through an antiseptic dressing. The surgical treatment then being an absolute necessity, we cannot over-estimate the importance of making the diagnosis certain by resorting to exploratory puncture with a hypodermic syringe. We can assure the patient that no harm can result from the procedure, and that the prognosis depends upon this means of settling the diagnosis.

In performing thoracentesis, some form of modern aspirator should be used. The patient should be prepared for the operation by administering an alcoholic stimulant, and, if an adult, a dose of morphine hypodermically; if a child, the camphorated tincture of opium by the mouth. By these measures the shock, caused by the introduction of the needle, is diminished, as are the cough, pain, and dyspnoea, which are so liable to follow the sudden withdrawal of the fluid and the subsequent expansion of the lung. The needle should be thoroughly cleansed and disinfected, and the point on the chest-walls at which the puncture is to be made should be thoroughly scrubbed with soap and water and bathed with an antiseptic solution. An anaesthetic cannot be considered as absolutely necessary.

J. Lewis Smith and a few other writers do not think that it is necessary to remove all the pus, but I think that we should remove as much as is possible, lest fistulous openings be formed through the walls of the chest, or through the lungs. Still it should not all be removed, if pain and dyspnoea be complained of, for the operation can be completed on the next day or within a few days.

I have performed thoracentesis one hundred and sixty-eight times, and have had no trouble from it, except slight pain and temporary dyspnoea.

As to the number of aspirations that should be made before resorting to the open method, there are many different opinions. I think, however, that the decision should depend almost entirely upon the character of the fluid and the physical condition of the patient. To illustrate this, I will refer to my own cases. The first case, aged seven years,

was cured after eleven aspirations. The second, aged seventeen years, after one aspiration. The third, a man thirty-five years of age, after two aspirations. The remaining three were not cured by aspiration; one of them, aged twenty years, was aspirated seventy-three times; another, aged three years, was aspirated ten times; and the last one, aged eight years, was aspirated seventeen times before thoracotomy was performed. It is stated by almost all writers that when the fluid becomes foetid incisions should be made, and I believe that the character of the fluid should govern us, to a great extent, as to when we should abandon thoracentesis and resort to thoracotomy. Still, in one of my cases, the pus was foetid at the forty-fifth aspiration, and the foetor had disappeared at the forty-ninth. The physical condition of this patient, while the pus was foetid, was in no way worse than it was just before or afterward, and, as has been stated, aspiration was done seventy-three times before thoracotomy was performed. This record, in connection with the opinion of other operators, is certainly sufficient to establish the fact that thoracentesis should always be given a fair trial in any case of purulent pleurisy, before the open method is resorted to.

During thoracentesis the sitting posture must be assumed by the patient, unless there is great feebleness, when the recumbent posture may be allowed. I removed thirty-two ounces of pus from one of my patients while he was in the recumbent posture, the needle being introduced between the fourth and fifth ribs in front. The pus seemed to flow as rapidly as though the patient were in the erect position.

I wish to call special attention to the condition of patients just after the operation of thoracentesis. The histories of my cases illustrate this condition very forcibly, nevertheless I mention it here. Take, for example, a patient aged from three to eight years, with the physical signs of empyæma, a temperature of 103° F., pulse from 120 to 160, and the respirations from 30 to 60 per minute. Remove the pus by aspiration, and the following morning the temperature will be very near the normal standard, or perhaps a little subnormal, and, if recovery is to take place from this operation, the pulse and respirations will also be very nearly normal, with but slight elevation on the following evening. If, however, there is to be a re-accumulation of the pus, and hence a necessity for repeating the aspiration, the temperature will be nearly normal or perhaps subnormal, but the pulse will remain at from 100 to 130, and the respirations from 40 to 60 per minute. From observations made during the progress of my cases, I have found that the rapid respiratory movement is the last symptom to disappear, and that there is no certainty in the success

of the operation until the pulse and respirations fall with the temperature.

The three cases cured by aspiration had a pleuro-bronchial fistula, and two of them expectorated large quantities of pus. The third never expectorated pus, but there was always considerable escape of air into the aspirator after the pus had ceased to flow, proving that a pleuro-bronchial fistula existed. In one of these cases, aged thirty-five years, the right arm was elevated during the operation, thereby elevating the scapula from its normal position, and the needle was introduced between the sixth and seventh ribs under the scapula, consequently, when the arm was lowered the scapula descended and covered the puncture made by the needle through the subscapular tissues.

The physical condition of the patient should be our principal guide in resorting to the operation of thoracotomy. In other words, thoracentesis should be adhered to, unless we see great emaciation and hectic symptoms. Another condition under which I would urge the operation of thoracotomy, is where perforations through the lung are threatened, since the most serious complication of empyæma is a pleuro-bronchial fistula.

In order to perform the operation of thoracotomy a general anaesthetic must be used. I am partial to ether carried to complete anaesthesia. The operation can then be performed carefully, the drainage-tubes adjusted with precision, and the antiseptic dressing applied without inflicting pain. The point selected for making the incision should be thoroughly cleansed, the tissues divided down to the pleura with a bistoury and a grooved director thrust into the pleural cavity, when the pus will begin to escape along the groove. The incision should then be made large enough in the adult to admit the index-finger, and in children lengthened to the extent of at least one inch to permit free escape, not only of the fluid, but of any fibrous masses or organic débris that may be present, which are apt to undergo decomposition and thereby produce septicæmia and death.

It is stated by almost all authors that there is no danger of the pus escaping too rapidly, since air will enter in its place and equalize the pressure. I have not found this to be true. In two of my cases I was forced to close the incision and stop the flow of pus by introducing my finger, and subsequently a tent, to relieve the cough and dyspnoea brought on by the sudden withdrawal of the fluid. This being the case, I think that it would be extremely hazardous suddenly to evacuate the fluid by incision, and immediately irrigate the pleural cavity, even if the pus were foetid. The success of the operation depends upon the free ingress and egress of air that has passed through an antiseptic dressing, and it

should be plainly heard passing through the tubes at each act of forced expiration.

The object of using irrigation is said to be to rid more completely the pleural cavity of the elements of decomposition, and thereby favor obliteration of the abscess cavity, by allowing the pleural surfaces to grow together by granulation. Therefore, if irrigations are employed, it is very important to use no force in carrying the fluid into the pleural cavity, since delicate and important granulations and adhesions may be broken up.

As soon after the operation as the condition of the patient will permit, two pieces of one-fourth inch drainage-tube should be introduced in such a manner as merely to project into the pleural cavity, and cut off about one-fourth of an inch from the external surface of the chest; then the antiseptic gauze dressing should be applied.

If the ribs are so close together that drainage cannot be maintained through a simple incision and rubber tubes, or if, from inexpandiveness of the lung or any other cause, the pleural cavity fails to become obliterated, the old operation of resection of ribs affords the best chances for thorough evacuation of the fluid and subsequent drainage.

At a recent meeting of the German Congress of Internal Medicine, the surgical treatment of empyæma was pretty thoroughly discussed, and to show the general plan adopted by those who took part in the discussion, I will give a synopsis of what was said :

"In the first place, it was agreed by all that some kind of surgical interference was indicated, except in very rare instances.

"Professor Immermann opened the discussion and stated, first of all, that the pus must be evacuated by operation; and next, that simple aspiration will not answer except in small empyæmata, which of themselves would become absorbed. The plan recommended by Bulau was spoken of most favorably. Immermann collected 49 complete cures out of 57 cases. It was not suitable, however, for cases of inexpandive lung, pyo-pneumo-thorax, or pulmonary fistulæ.

"Dr. Schede, of Hamburg, took the surgeon's view of the matter, and advised the radical operation, *i.e.*, resection of rib. Bulau's operation he thought much less safe than resection.

"Dr. Curschmann, of Leipsic, has treated all cases in the past ten years by Bulau's method. Among 73 cases 89 per cent. were cured and 6 died.

"Professor Leyden spoke favorably of Bulau's method.

"Dr. Ewald, in 1874, had collected statistics in Frerich's clinic of 109 serous and 46 purulent cases, and had then concluded that of 1000 cases 928 do not get well with simple puncture, while 528 are cured by radical operation. The results of surgery to-day are much better than that. In the present year he had, with Koster, operated with the double incision in 9 cases, with 1 death from rapid tuberculosis. The operation was done as soon as the nature of the case was proved. The objections arising from the old cases would be obviated if early interference were the rule.

"Professor von Ziemssen, of Munich, had for ten years past treated all empyæmata by incision and rib resection, and was perfectly satisfied with this method.

"Dr. Mosler, of Greifswald, advised, after the operation, washings with boric acid, and then injections of iodiform and glycerin.

"Dr. Runeberg, of Helsingfors, treated all empyæmata by rib resection, and did not wash out. He had thus dealt with 63 cases, of which two were still under treatment. Two were manifestly tuberculous, 10 were due to pulmonary gangrene, 49 were simple empyæmata. Of these latter, 46 were completely healed, in 2 fistulae remained, 1 case died from erysipelas. The average duration of treatment was forty-eight days.

"It will be noticed that the opinions of all who took part in the discussion were divided between Bulau's method and rib resection. Simple incision with the introduction of drainage-tubes was not advocated by any of them. Nearly all thought that injections were useless."¹

Now, the plan of making free incisions and introducing drainage-tubes is frequently successful in this country, and I do not believe that rib resection should ever be resorted to, except in cases in which perfect drainage with free ingress and egress of air fails to be accomplished by simple incision, and in cases in which the cavity fails to become obliterated, from an inexpensive lung or from any other cause. In such cases the removal of a considerable portion of rib weakens the thoracic walls, and thereby favors retraction of the chest and obliteration of the pus-cavity.

In all of my cases it was evident that the pleural cavity was almost obliterated within the first two or three days after thoracotomy was performed, and, instead of producing dyspnea and cyanosis, these symptoms rapidly disappeared after the operation.

I am satisfied that irrigations cannot be used with safety, since there have been many instances of sudden death directly attributable to them. Loomis states that he has thrice had good reason to attribute sudden death to the direct effect of washings. Sir Joseph Lister also advises against irrigation. Consequently I do not believe that it should be practised unless there are symptoms especially demanding it. It is admissible when the discharge is very chronic, and continues in spite of free drainage, and when there are symptoms which threaten septicæmia. I used irrigations of warm water in all of my cases, and am convinced that they are irritating and injurious during the first two or three weeks following the operation.

In one of my cases, aged twenty-one years, the tube accidentally dropped out too early, and there was a re-accumulation of the pus and enlargement of the abscess cavity. Weak solutions of iodine (four or five grammes each of iodine and iodide of potassium to the pint of warm water that had been boiled) proved to be very beneficial. The discharge was checked at once, and the pus-cavity quickly obliterated.

To illustrate the subject further, I will report the following cases:

CASE I.—Carl R., male, aged seven years. Had influenza, complicated by pneumonia, in March, 1889. On April 27th, pulse 98, temperature $99\frac{1}{2}^{\circ}$, decided dulness over the right side of the chest. Removed by aspiration 4 ounces of pus.

May 2. Pulse 102, temperature $102\frac{1}{2}^{\circ}$; removed 8 ounces of pus from between seventh and eighth ribs in the axillary line.

5th. 9 A. M., pulse 110, temperature $99\frac{1}{2}^{\circ}$; has considerable cough with some expectoration; removed 4 ounces of pus.

8th. Pulse 115, temperature $100\frac{1}{2}^{\circ}$; removed 6 ounces of pus.

9th. Pulse 76, temperature 98° , respirations 36; slept well last night, calls for food.

10th. Pulse 100, temperature $99\frac{1}{2}^{\circ}$; removed 3 ounces of pus.

11th. Pulse 96, temperature $98\frac{1}{2}^{\circ}$, respirations 36; takes plenty of nourishment.

12th. Pulse 100, temperature $99\frac{1}{2}^{\circ}$; has taken too much food and is passing blood from the bowels.

15th. Pulse 110, temperature $99\frac{1}{2}^{\circ}$, respirations 40; removed 1 ounce of pus.

17th. Pulse 115, temperature $102\frac{1}{2}^{\circ}$, respirations 40; removed $3\frac{1}{2}$ ounces of pus.

18th. Pulse 100, temperature 99° ; much more comfortable.

19th. Pulse 118, temperature $102\frac{1}{2}^{\circ}$; removed 3 ounces of very thick pus.

21st. Pulse 90, temperature $98\frac{1}{2}^{\circ}$, respirations 30; removed 1 ounce of pus.

23d. Pulse 120, temperature $100\frac{1}{2}^{\circ}$; removed 1 ounce of thick pus.

28th. Pulse 100, temperature $98\frac{1}{2}^{\circ}$, respirations 24.

CASE II.—E. R., male, aged seventeen years. Had influenza and pneumonia, followed by abscess of the lung, which discharged large quantities of pus by expectoration, from April 10 to May 28, 1889. On May 29th cough had entirely ceased, pulse 110, temperature 100° ; circumscribed dulness over the abscess cavity about the middle of the left side of chest. Removed by aspiration about six ounces of very offensive pus—all that would flow through the instrument. There was no cough or distress of any kind when the operation was completed, but cough began in an hour afterward, and he expectorated eight or ten ounces of very offensive pus within the next twelve hours.

May 30. 8 A. M., pulse 88, temperature $98\frac{1}{2}^{\circ}$; expectoration has entirely ceased and the patient is very comfortable.

30th. 7 P. M., pulse 84, temperature $97\frac{1}{2}^{\circ}$; still no expectoration. Great retraction of the chest-walls in the locality of the abscess.

June 8. Pulse 80, temperature $98\frac{1}{2}^{\circ}$.
He made a complete recovery.

¹ Medical Record.

CASE III.—W. R., male, aged twenty years. Had influenza, and on March 16, 1889, had a chill followed by pneumonia of the right lung. There was no decided crisis, and on April 12th I removed 13 ounces of pus from between the seventh and eighth ribs in the axillary line. At this time his pulse was 92, temperature 101°, respirations 30. The cough had ceased. When the thirteen ounces of pus were removed he had some pain and dyspnoea, and the operation was ended.

April 14. Pulse 90, temperature 99½°. Has slept well since the operation.

15th. Pulse 96, temperature 99½°. Is obliged to take morphine to procure sleep. I removed 6 ounces of pus, when the operation had to be terminated.

16th. Pulse 84, temperature 99½°. Has slept well since the operation.

18th. Pulse 92, temperature 100°, respirations 50; symptoms of re-accumulation. Removed 32 ounces of pus; the puncture was made in front, between the fourth and fifth ribs, the patient lying on the back.

19th. Pulse 80, temperature 98½°, respirations 22. Is very comfortable.

July 15. Forty-five aspirations have been performed, and 351 ounces of pus have been removed.

16th. I removed 8 ounces of very offensive pus. Thoracotomy advised, but the patient would not consent to the operation.

When the forty-ninth operation was performed the foctor had entirely disappeared. Aspiration was repeated until the seventy-third operation, when 500 ounces of pus had been removed.

September 14. Pulse 112, temperature 98½°. The operation of thoracotomy was performed, ice being used as a local anaesthetic. The incision was made in front because the pus was pointing there. Five or six ounces of pus escaped, a soft rubber drainage-tube was introduced, and the dressing applied, which consisted of several layers of antiseptic gauze. About 2 ounces of pus were discharged daily until October 1st. At this time his pulse was 110, temperature 100°, and I commenced to irrigate the abscess cavity.

November 1. Pus cavity has been irrigated since October 1st, and now holds only a drachm or two of fluid.

8th. The tube is still in place and the patient is able to walk a mile or two. From this time he made a complete recovery.

CASE IV.—John G., male, aged thirty-five years. Developed pneumonia on April 10, 1890. I saw him in consultation with Dr. G. C. Radford on May 22d. He then had been expectorating large quantities of pus. His temperature on May 20th and 21st, was 102°; when I saw him his temperature was 98½°, pulse 84, and respirations 24. There was circumscribed dulness about the lower angle of the scapula; I elevated the scapula and removed 5 ounces of pus from between sixth and seventh ribs.

May 23. Temperature 100°, pulse 72, respirations 22.

24th. Temperature 99°, pulse 72, respirations 22; removed 12 ounces of pus from under lower angle

of the scapula. No distress of any kind followed the operation.

June 1. Temperature 98½°, pulse 85. On June 4th and 5th, he expectorated a considerable quantity of pus.

8th. Temperature 98½°, pulse 72, respirations 20. From this time he made a complete recovery.

CASE V.—Katie W., female, aged three years, was taken with pneumonia on February 13, 1890. I saw her in consultation with Dr. Onslow Regan on March 29th, temperature 102°, pulse 140, respirations 40. I removed 7 ounces of pus by aspiration.

March 30. Temperature 97½°, pulse 112, respirations 40.

31st. Temperature 101½°, pulse 130, respirations 48. Removed 5 ounces.

April 1. Temperature 98½°, pulse 104, respirations 36; patient comfortable and playful.

3d. Temperature 103°, pulse 150, respirations 50. Removed 6 ounces of thin pus.

5th. Temperature 97°, pulse 110, respirations 40; patient very comfortable.

6th. Temperature 101°, pulse 150, respirations 50. Removed 6 ounces of pus from between the fifth and sixth ribs, in the axillary line.

7th. Temperature 98½°, pulse 120, respirations 36.

11th. Temperature 101½°, pulse 140, respirations 48; considerable cough and expectoration, but patient swallows the pus.

13th. Temperature 102°, pulse 140, respirations 48.

15th. Temperature 98½°, pulse 120, respirations 40; expectorating and swallowing large quantities of pus. Pus-cavity completely emptied by the pleuro-bronchial fistula.

19th. Temperature 101°, pulse 140, respirations 48; expectoration has ceased, and there are evidences of re-accumulation of pus in the pleural cavity; I removed by aspiration 18 ounces of pus.

20th, 9 A. M. Temperature 99°, pulse 130, respirations 30. *6 P. M.* Temperature 100°, pulse 130, respirations 50; considerable cough, but no expectoration. Eleven operations have been performed, and air escaped freely into the aspirator through a pleuro-bronchial fistula, after the pus had ceased to flow, at each operation.

Performed thoracotomy under ether carried to complete anaesthesia. Incision made in the axillary line between the sixth and seventh ribs. About one pint of pus escaped, air was freely admitted in its place, but cough and dyspnoea supervened, and a tent was introduced to prevent complete evacuation of the fluid.

21st. Temperature 98½°, pulse 120, respirations 30; removed the tent, and one pint of pus escaped. A single one-quarter-inch soft-rubber drainage-tube was introduced, a dressing applied, and air freely admitted.

24th. Temperature 98°, pulse 120, respirations 24.

26th. Temperature 98°, pulse 120, respirations 24; has dysentery, caused by having swallowed the pus.

May 1. Temperature 98½°, pulse 120, respira-

tions 24; about 1 ounce of pus is being discharged per day through the tube.

6th. Temperature $98\frac{1}{2}^{\circ}$, pulse 120, respirations 24; only 2 or 3 drachms of pus escaping per day.

10th. Temperature $98\frac{1}{2}^{\circ}$, pulse 120, respirations 24; very comfortable; was carried on the streets in her carriage.

31st. Temperature $98\frac{1}{2}^{\circ}$, pulse 120, respirations 24; pus-cavity has been irrigated since May 17th; now discharging 1 ounce of pus per day; washings discontinued.

June 8. Temperature $98\frac{1}{2}^{\circ}$, pulse 120, respiration 24; has been able to stand on her feet for several days; still wearing the tube.

17th. Tube removed, and patient discharged cured.

CASE VI.—Maxwell G., male, aged eight years, was taken sick with pneumonia, March 23, 1890. There was no decided crisis, and on the fourteenth day after the chill his temperature was 100° , pulse 130, respirations 48.

April 6. Temperature 101° , pulse 120, respirations 40.

7th. Temperature $100\frac{1}{2}^{\circ}$, pulse 125, respirations 50. Removed 6 ounces of pus by aspiration from the right pleural cavity; the needle was introduced between the fifth and sixth ribs in the axillary line.

9th. Temperature 100° , pulse 130, respirations 48. Removed 3 ounces of pus.

10th. Temperature 99° , pulse 125, respirations 40.

12th. Temperature 101° , pulse 130, respirations 48. Removed 4 ounces of pus.

13th. Temperature 99° , pulse 120, respirations 36.

14th. Temperature $102\frac{1}{2}^{\circ}$, pulse 130, respirations 48. Removed 2 ounces of pus.

15th. Temperature $98\frac{1}{2}^{\circ}$, pulse 116, respirations 36.

17th. Temperature $101\frac{1}{2}^{\circ}$, pulse 120, respirations 48. Removed 4 ounces of pus.

18th. Temperature $98\frac{1}{2}^{\circ}$, pulse 100, respirations 40.

20th. Temperature $100\frac{1}{2}^{\circ}$, pulse 120, respirations 48. Removed 4 ounces of pus.

26th. Temperature 102° , pulse 130, respirations 50. Removed 2 ounces of pus.

27th. Temperature $99\frac{1}{2}^{\circ}$, pulse 130, respirations 40.

28th. Temperature 100° , pulse 120, respirations 40. Removed 2 ounces of very thick pus.

May 1. Temperature 98, pulse 112, respirations 32.

6th. Temperature 100° , pulse 120, respirations 48.

9th. Temperature $98\frac{1}{2}^{\circ}$, pulse 110, respirations 40.

14th. Temperature 99° , pulse 120, respirations 40. Removed 2 ounces of pus.

15th. Temperature 98° , pulse 100, respirations 36.

21st. Temperature $98\frac{1}{2}^{\circ}$, pulse 132, respirations 50. Removed by aspiration 8 ounces of pus.

22d. Temperature $102\frac{1}{2}^{\circ}$, pulse 152, respirations 50.

23d, 9 A. M. Temperature $98\frac{1}{2}^{\circ}$, pulse 120, respirations 40. Performed thoracotomy under complete anaesthesia from ether. A large quantity of pus

escaped, together with solid fibrous masses and débris. A severe cough and dyspnoea set in before the pus-cavity was emptied, and the incision was closed by introducing a tent. At 8 P. M., temperature $98\frac{1}{2}^{\circ}$, pulse 120, respirations 40.

24th. Temperature $98\frac{1}{2}^{\circ}$, pulse 100, respirations 35. Removed the tent from the incision, when several ounces of thin fluid escaped. Two pieces of one-fourth inch soft-rubber drainage-tube were introduced into the incision side by side.

25th. Temperature $98\frac{1}{2}^{\circ}$, pulse 90, respirations 32; air passes freely into and out of the pus-cavity through the tubes, and several ounces of serous fluid have escaped.

28th, 9 A. M. Temperature $98\frac{1}{2}^{\circ}$, pulse 110, respirations 36; 6 P. M., temperature 100° , pulse 130, respirations 48.

June 6. Temperature $98\frac{1}{2}^{\circ}$, pulse 90, respirations 30; able to sit up in bed.

15th. Up and walking about the room. I removed the tubes. From this time he made a rapid recovery.

In such cases as those reported some time ago by Dr. G. Frank Lydston, in the *Western Medical Reporter*, aspiration would hardly be indicated.

These cases are of a very interesting and exceptional character, and I will briefly report them in Dr. Lydston's own words:

"These cases I observed some years ago at the New York Emigration Hospital, and, for want of a better term, I have called it acute empyæma or acute suppurative pleurisy. The patient, a stout, powerfully-built Scandinavian, was sent to Ward's Island from Castle Garden immediately after landing, and without examination or diagnosis. As my interpreter was absent, I postponed a thorough examination of the patient until the following morning, making the provisional diagnosis of pleurisy with effusion. The temperature was 104° in the axilla. I was called away from the hospital the following morning, and upon my return in the afternoon I found the patient in a dying condition. He lived only an hour after I saw him. On post-mortem examination I was astonished to find the right side of the chest distended with pus of an exceedingly fetid character; the lung was compressed against the mediastinum. When stripped off it formed a layer not exceeding an inch in thickness. So firmly was it compressed that I was at first at a loss to know what had become of the lung. The purulent fluid nearly filled an ordinary ten-quart milk-pail. All the other organs were in a healthy condition. The patient had only been sick about two weeks, as he was taken ill after getting aboard the steamer bound for America. This case was evidently of an infectious character, and probably the result of secondary infection, but I have no idea as to what might have been the primary difficulty."

"In this case a preliminary tapping would have been good practice, but sooner or later a free incision, with drainage, would have been necessary.

"The second case was that of an elderly woman, who developed empyæma secondary to pleurisy with effusion. The origin of the difficulty was unquestionably tubercular. The effusion subsided readily, but after a few weeks a rise of temperature, chills, and increase of pain heralded the formation of pus. It was about three weeks before I was able to detect the location of the purulent inflammation. I finally, however, mapped out an area of dulness, about the size of a silver dollar, at the level of the

ninth and tenth ribs, about four inches from the spinal column. Aspiration proved the existence of pus. A modified Estlander's operation was performed, with the excision of about two inches of the tenth rib. On passing the finger into the track of the pus it was found to lead to a considerable saccus between the inner surface of the lung and the mediastinum. Free drainage was instituted, and the cavity closed in about eight weeks. Several months later a swelling appeared upon the thorax at the junction of the third and fourth costal cartilages with the sternum. This finally opened and discharged a considerable quantity of pus. Operation was refused. The patient finally died, apparently from the prolonged suppuration rather than from the tubercular process in the lungs, which, contrary to expectation, progressed very slowly.

"The third case of interest was very similar in some respects to the preceding. The patient, a man of middle age, previously healthy and strong, had been suffering from acute pleurisy for four or five days. On examination I found that tapping was not yet necessary, but suggested that it might be advisable later on. Three weeks later I again saw the patient, but the effusion, which, Dr. Walker informed me, had apparently been considerable, had almost entirely been absorbed. About a week later an irritating cough came on, and the temperature, which had become normal, again rose quite suddenly, but subsided in less than a week. The patient now began to expectorate a fetid, purulent sputum; diarrhea also set in. The severe cough and inability to sleep in the recumbent posture proved very annoying.

"On examination I found an area of dulness on percussion in about the same location as in the preceding case, and, bearing this case in mind, I diagnosed sacculated empyema between the lung and the mediastinum. The same operation was performed as in the preceding case. A large quantity of pus, of a very offensive character, escaped; the odor was that characteristic of rotten eggs. The expectoration of the anti-septic fluid used for irrigation showed that the saccus communicated with the bronchi. The case has done well since the operation, and is in a fair way to recover. The cough and diarrhea have improved, and an excellent appetite has developed. As there is no appearance or history of tuberculosis in the case, the prognosis is apparently favorable."

REMARKS ON THE SURGICAL TREATMENT OF FIBROID TUMORS OF THE UTERUS.¹

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FIBROID tumors of the uterus are benign even after cystic degeneration has occurred in them. The direct mortality from these tumors is, in my belief, greater than it was thought to be by the authors who wrote concerning them ten years ago. Many hitherto published statements emanating from operators became axioms, and, to some degree, impediments to surgical progress in the management of these tumors.

For instance, we were taught that unless the tumor threatened the life of the patient, we should not interfere with it. We were also taught that if the patient could be carried along until the menopause was established, that the tumor would gradually

atrophy, and finally disappear. Further, we were taught that subserous fibroids did not require surgical operation. Finally, supra-vaginal hysterectomy was denounced as an unwarrantable procedure on any patient, unless without it her death was practically an assured fact. These teachings are rapidly becoming ancient history despite the desperate efforts and exaggerated statements of the advocates of electricity as a curative agent. In regard to the latter, men who did not own a battery, and who had never seen a fibroid tumor removed by an electrical current, have written elaborate articles on the subject. Happily for the surgeons, who had about arrived at a consensus of opinion in the surgical methods in the treatment of these cases, these "lightning bugs" have become in recent months less numerous. The dogmatical teachings, already referred to, are also being greatly modified and liberalized.

For the sake of brevity, let me say that in all fibroid tumors which have undergone cystic degeneration the propriety of their total removal with or without the uterus is a conclusion concerning which there is no debate. The non-cystic class, when projecting into the uterus, can be, as a rule, safely removed *per vaginam*, even when as large as an adult head. Such a case I reported some years ago, and the subject of the operation is still living and in good health. But it is only when such large tumors press upon and distend the cervix that their removal *per vaginam* is preferable to removal of the ovaries, or to supra-vaginal hysterectomy.

On the other hand, enucleation of submucous fibroids should not be undertaken, if it is reasonably certain that other small fibroids exist in the body of the uterus or project upon its serous surface. In such cases the removal of the ovaries is decidedly preferable; and this rule of action may safely apply to all fibroid tumors which are of the multiple or of the hard variety, and also to the softer variety prior to the time at which they have reached a size when hysterectomy, by reason of an available pedicle, might be done with a fair chance of success.

This brings us, then, to a consideration of those cases which are subserous in their relations. These tumors, when pediculated, should be removed by abdominal section. This opinion is based upon the observation of a number of pediculated fibroid tumors which persisted for many years after the establishment of the menopause; also upon the fact that they produce grave and troublesome symptoms leading to confirmed invalidism, and, in case of pregnancy, frequently endanger the life of the mother.

As will be seen, hysterectomy is left, therefore, for exceptional circumstances, such as when the condition endangers the life of the patient, and after

¹ Read before the Mississippi Valley Medical Association, 1890.

removal of the ovaries has failed, or until such measures appear useless from the start. Doubtless, hysterectomy is a grave procedure, and only justifiable when other means are of no avail. But to permit a woman to go from bad to worse until her vital forces are so exhausted that she will probably succumb to any surgical procedure, and then do upon her a supra-vaginal hysterectomy, is to subject the operation to an unwarranted test, and the surgeon to a foolish disregard of his own reputation. It is the old story of neglected opportunities for both patient and surgeon.

As to methods of hysterectomy, the extra-peritoneal plan of treating the pedicle is at present the best. Even when the pedicle is short, it may be lengthened by having first secured the cervix at the vaginal junction with an elastic ligature, bisecting the uterus, shelling out the tumor, and permanently securing the now lengthened cervix at a higher point; or, having separated the uterus by division of the broad ligaments between properly-applied ligatures on the outer side, and having clamped forceps on the uterine side, the object will be attained; or, separation of the bladder from the supra-vaginal cervix, and enucleation of the tumor prior to amputation of the body of the uterus, may result in a good pedicle. Finally, it may be advisable to take out the neck entirely, as has been repeatedly done successfully, notably by A. Martin, of Berlin, and Eastman, of Indianapolis.

The question of constriction of the pedicle is one of importance. For this purpose malleable iron wire has given excellent results; it has the disadvantage, however, of requiring a careful watch during the first seventy-two hours. The fact that elastic tubing used as a ligature takes care of itself, renders it safer than the wire; but, in my experience, the slough dips deeper into the cervix than when the wire is used. The best outer-dressing of the pedicle has been debated. Bantock simply packs the pedicle in dry thymol gauze. Tait, Keith, and others mummify it, some with the cautery, others with the perchloride of iron. After trying various methods, that which has given the greatest satisfaction is the following: After the abdominal wound is closed, the stump is hollowed out and trimmed down inside of its peritoneal covering as far as is safe, and a large quantity of subsulphate of iron (Fenton) is placed upon it. The peritoneal covering of the stump is "whip-stitched" across this as much as possible, a large piece of sheet rubber having first been securely placed below the pins and drawn firmly against the pedicle.

The space between the upper margin of the knob of the pedicle and the pins is carefully packed with gauze; over this packing and over the top of the pedicle the subsulphate of iron is freely sprinkled—in

fact, the pedicle is thoroughly covered. A handful of gauze is then placed on the top of all this, the sides of the "rubber dam" are brought up over all, and the binder applied. A pedicle thus dressed emits no odor whatever, and requires no looking after until it drops off.

In a case recently treated by this method in my Sanitorium the temperature never passed the physiological limit (99.5° F.), the patient's pulse remained correspondingly good throughout, and she required no attention beyond that given by the nurse.

Hysterectomy is an operation not to be lightly undertaken; although I had witnessed many cases among European surgeons during 1881, 1882, and 1883, it was not until after I had done a hundred abdominal sections that I felt entirely comfortable concerning an approaching hysterectomy. But the operation, in the hands of surgeons of experience and under proper surroundings, will improve in statistics and establish itself upon a sound basis.

DISCUSSION.

In discussion DR. L. S. MCMURTRY, of Louisville, said that, in considering this subject, it is necessary at the outset to recognize the fact that fibroid growths are of two distinct kinds—the multiple, nodular fibroids, and the large, soft, edematous fibroids. These two classes are distinct pathologically and clinically, and require different methods of treatment. The multiple, nodular fibroid is a tumor which produces, as a rule, no serious troubles, and frequently disappears at the menopause. A simple exploratory incision into the abdomen has often been followed by disappearance of these tumors. When their growth is active, pressing upon adjacent organs, accompanied by menorrhagia, and exhausting the patient by loss of blood, the operation of removal of the uterine appendages is one of the most prompt in relief and satisfactory in results of the many brilliant operations known to modern pelvic surgery. The hemorrhage is arrested, the tumors shrivel, and the patient is restored to health. The mortality of this operation in skilled hands is less than two and one-half per cent.

With the soft, edematous fibroid or uterine myoma it is altogether different. These tumors may appear either early or late in life. The speaker removed one which occupied the abdominal cavity up to the epigastrium in a woman more than fifty years of age, while Dr. Sutton has the specimen of one removed from a girl of sixteen years. These tumors are not arrested in their growth by the menopause. They increase with rapidity; they press upon the bladder, kidneys, intestines, stomach, and the great bloodvessels; they excite frequent attacks of peritonitis; the patient is exhausted by pressure-symptoms; her feet and limbs swell, and emaciation and death follow after months of increasing suffering. The growths undergo cystic degeneration and in some instances they break down in places, forming suppurating cavities in the mass.

The only treatment for this latter class of uterine tumors is complete excision by supra-vaginal hysterectomy. In many instances the mushy, edematous fibroids,

particularly if cystic degeneration has taken place, cannot be diagnosed from ovarian cystomata. The first supra-vaginal hysterectomy that the speaker performed he thought, before opening the abdomen, would be an ovariotomy. Operators of the widest experience and most acute diagnostic skill have had the same experience. Indeed, he said, it is not easy, even *after the peritoneum has been entered*, to distinguish a soft uterine myoma from an ovarian cyst. Both tumors are of a pearly hue, and both fluctuate. For this reason the operator who undertakes ovariotomy should be fully prepared to do supra-vaginal hysterectomy.

Of late, electricity has been much vaunted in the treatment of fibroid tumors of the uterus. Dr. Sutton merely mentioned this agent in his paper, probably purposely, because he knows that electricity does nothing toward arresting or removing these tumors. A peculiar feature about the application of electricity in pelvic surgery is, that those who a few years since denied the existence of certain forms of intra-pelvic disease are now foremost in the diagnosis and treatment of these same diseases by electricity. The application of electricity by puncture is fraught with great danger. The speaker has removed a uterine myoma by supra-vaginal hysterectomy, weighing sixteen and a half pounds, in which the entire anterior aspect which had been accessible to electric treatment was bound by dense adhesions to the omentum, intestines, and abdominal wall. It is because abdominal surgeons have the opportunity to see the results of electrical treatment that they are so universally opposed to its use. Much has been said of Thomas Keith's advocacy of the treatment of fibroid tumors of the uterus by electricity, but in a recent public utterance in this country, Dr. Keith's son announced that it is altogether a mistake that his father has abandoned hysterectomy, adding that he had just received a letter stating that his father had recently done a hysterectomy. This is a significant announcement at this time.

The important fact to grasp is that these tumors destroy life and that the operation for their removal is done to save life. The results of supra-vaginal hysterectomy, with extra-peritoneal treatment of the pedicle, in skilled hands are so excellent that the method is deserving of increasing confidence and wider application. It is not just to patients afflicted with uterine myomata to assure them that these tumors are unimportant, will do no harm, and disappear after the change of life. Operation should be recommended before adhesions have formed and before the patient becomes emaciated and exhausted.

DR. C. H. HUGHES, of St. Louis, said that he would refer to only one point in connection with the treatment of uterine fibroids, because these diseases were not in his line of practice. He has employed electricity therapeutically for twenty-five years, and for ten or fifteen years he has used it very extensively. In regard to the employment of the agent for the purpose of dispersing morbid growths, whenever a morbid growth has passed beyond the reach of the absorbent system and it is doubtful whether it can be influenced through the vasomotor mechanism that governs the arteriole circulation, then electricity is not likely to be of value. It is the empirical use of it, without due regard to its physiological impress

upon the ganglionic centres and the circulation controlled by them, that is at fault. It is a misunderstanding of this fact which has caused much discrepancy of opinion in regard to the results of electrical treatment.

The subject of electrization in the control of intra-pelvic vascular conditions was studied long before Apostoli came upon the scene, and long before he stated that these conditions can be influenced through the vasomotor mechanism which controls the pelvic arteriole circulation, by galvanization. It will do in hyperæmia connected with the intra-pelvic viscera, just as in cases of cerebral hyperæmia, and those who have tried it as a therapeutic measure know that the effect is the same upon the viscera of the pelvic and abdominal cavity as it is on the cerebrum. Electrization, from the speaker's experience, applied to intra-uterine fibroids and other tumors of the pelvic viscera, is a valuable therapeutic measure.

In the early treatment of developing tumors of the pelvic or other viscera it ought, in every instance, to anticipate the knife; but in the later and final stages of many morbid growths it will not supplant surgical interference.

The true test of its value is in its control of conditions which promote the growth of tumors and in arresting their progress, while, at the same time, it improves the general tone of the patient and makes him or her more resistive to the local disease.

DR. RUFUS B. HALL, of Cincinnati, said that, although a number of surgeons claim that the intra-peritoneal method is safer than the extra-peritoneal method in supra-vaginal hysterectomy, yet with Dr. Price's record of thirty-one consecutive recoveries after operations, and the good results obtained by other operators, which prove it to be the best method yet devised, we have no reason to abandon it for the intra-peritoneal method. We know the peculiar nature of the tissue with which we have to deal, and the only safe method of controlling hemorrhage is to have the wire external, so that it is under control. When the stitches are inserted in the abdominal wound the wire can be twisted with the serre-nœud as tight as before placing the stitches, but before closing the wound the wire will be quite loose, so rapidly does the stump shrink, and the serre-nœud will require two or three half-turns. This shrinkage goes on for a number of hours.

The speaker could not understand why Dr. Sutton recommended mutilating the tumor instead of making a long incision. He has seen tumors weighing as much as forty-nine pounds removed by supra-vaginal hysterectomy, and the wound heal as well as if the incision was four inches long. Many of the complications which occur from the effort of trying to remove a long fibroid through too short an incision, would not take place if a long incision was made. He is in favor of making an incision long enough to permit turning the whole tumor out at once, and which will not require removing the tumor in pieces, which is a very unsurgical procedure.

The question of making a pedicle is one that is exceedingly interesting to the operator, and of vital importance to the patient, and he regretted that Dr. Sutton had not seen fit to elaborate that very interesting point.

The speaker recently operated on two cases, in both of which, when the tumors were first turned out, the pedi-

cles were as thick as a man's thigh. These are the cases that try the operator's skill and patience. Of course, we can make a pedicle, but we do it with more or less difficulty, and the tension afterward is very great, and complicates and retards the convalescence.

DR. C. A. L. REED, of Cincinnati, thought that one of the most important points in the paper of Dr. Sutton was the reference to the common practice of advising non-interference when patients are approaching the menopause. The fact has been emphasized by Dr. McMurtry that the majority of fibroid tumors of the uterus do not disappear at the menopause. The statement was made by Keith, and has been repeated in many of the text-books, that they atrophy and disappear with the onset of the senile changes which begin at the change of life. The speaker recently saw a case under the care of Dr. Joseph Price in Philadelphia, of a woman who developed a soft myomatous tumor at the age of fifty-seven years. This tumor developed twelve years after the menopause had occurred, and an operation was done to arrest haemorrhage.

A single case, such as this, and he thought there were others, completely upsets the theory which is based upon purely negative observations. He believes that many tumors with haemorrhagic characteristics, that develop in elderly women, and which we are disposed to look upon as malignant, are undoubtedly cases of soft myomata; and with the demonstrated low mortality which follows the perfected operation of supra-vaginal hysterectomy, many cases might be subjected to operation which are allowed to go on without operative interference, only to die from a slow process of exsanguination.

NEW PROBLEMS OF NUTRITION IN HEALTH AND DISEASE.¹

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(Concluded from page 186.)

From all the facts in the preceding part of this paper the inference is to be drawn that chromatin contains iron as an integral part of itself. I resolved, if possible, to put this inference to the test of actual demonstration, but owing to the pressure of other work no opportunity presented itself till this autumn, when Mr. R. R. Bensley, working in the Physiological Laboratory of the University of Toronto, kindly undertook, at my request, the investigation. After fruitless attempts to demonstrate micro-chemically the presence of iron in the large nuclei of the salivary tubules of insect larvæ, it occurred to us to isolate large quantities of chromatin from the organs not concerned in blood-formation, as the liver is supposed to be in higher animals. For this purpose lambs' testicles were minced up, the cellular elements extracted with water containing 0.2 per cent. of hydrochloric acid, digested with pepsin and hydrochloric acid for several days until the clear fluid gave no peptone reaction,

and the residue extracted first with alcohol, then with ether to remove fats and even the slightest trace of haematin. The chromatin so prepared gave no iron reaction in the cold with ammonium sulphide or with solutions of potassic ferrocyanide, but when ashed, and the ash extracted with weak hydrochloric acid, the extract gave marked iron reactions with ammonium sulphide, potassic ferrocyanide and ammonic sulphocyanide. These experiments were tried over and over again with the same result, and a number of control-experiments were also carried out to prevent mistake or error.

The iron in the chromatin cannot be detected by any of the ordinary chemical tests, and, therefore, is analogous to Zaleski's *hepatin*. It is only when the chromatin is heated with ammonium sulphide that any reaction occurs, and even then it is feeble, whereas with the haemoglobin of egg-yolk it takes place much more readily and distinctly.

Mr. Bensley has also prepared small quantities of chromatin from the thymus of the calf, and has found that it too contains iron as firmly combined as is that of the testicle.

I think that it is now definitely determined that the nucleus of every living animal cell contains an iron-holding proteid, and that this compound is the one which is regarded by cytologists as the controlling factor in the life of the cell. I propose to keep the name chromatin¹ for this compound and leave the term nuclein for a derivative of it.

It may be asked how it was that the earlier students of the nucleins overlooked the presence of iron. They usually separated the nucleins by peptic digestion, then dissolving the residues, and washed with ether and alcohol, in solutions of caustic soda, precipitating them therefrom with hydrochloric acid, redissolving and reprecipitating several times. The precipitate so obtained, the so-called soluble nuclein, cannot, after such a thorough course of treatment, be held to represent the original chromatin. The nucleins which the earlier chemists isolated from the egg-yolk were put through this vigorous method of preparation, and it is not surprising that the observers did not detect the iron in them which Bunge found to be present only a third less abundantly than in haemoglobin of mammalian blood, and little less so than in the haemoglobin of chicks. *A priori*, we should expect that the ground-substance of life has a more complicated constitution, a larger number of atoms of each of the single chemical elements present in it, than albumin or globulin. Yet chemists have approximately determined the formula of nuclein as $C_{39}H_{49}N_9P_5O_{22}$, while Zinoffski² has given good

¹ The fact that chromatin gives origin to haemoglobin and probably also to nuclein, renders the name very appropriate.

² Ueber die Grösse des Haemoglobin Moleküls. Zeit. für Physiol. Chemie, Bd. x. p. 16.

¹ Delivered as one of the lectures of the Post-graduate Medical Course of the University of Toronto, December 20, 1890.

reasons for believing that the molecule of albumin or globulin contains more than thirteen hundred atoms of carbon with the atoms of the other elements present in it, correspondingly numerous.

As I have already indicated, haemoglobin¹ is derived from the chromatin of the haematoblast. Now, the formula of the haemoglobin molecule is, according to Preyer, $C_{600}H_{980}N_{154}FeS_3O_{179}$, or, according to Zinoffski, $C_{712}H_{1180}N_{314}S_2FeO_{245}$. Can we conceive then of a nuclein, if it be like chromatin, and with a formula of $C_{29}H_{48}N_9P_4O_{22}$, giving rise by degeneration or otherwise to a compound of the formula $C_{600}H_{980}N_{154}FeS_3O_{179}$? If so, then a compound by degeneration or otherwise gives rise to one in which the atoms are more numerous, the oxygen relatively less abundant in volume and, therefore, the chemical energy greater. To take this position is to overthrow all our ideas of assimilation. Is it not simpler to assume, as Bunge has done in the case of haematoxin, that only vegetable cells can, under the influence of sunlight, store up energy in the form of complicated compounds, of which the chromatins are examples, compounds which when transferred to the animal cell undergo transformations and present phenomena which are grouped under the term vital?

In the heparin of Zaleski and in the chromatin of the testicle and thymus, the iron is as firmly combined as it is in haematin or in haemoglobin. Such a firm combination means the storage of energy. Can we believe that the animal cell is capable of such a storage? The animal cell cannot build up albumins out of any simpler substances.² It is evident that the chromatins are more complicated than the albumins. It is reasonable on this ground alone to conclude that the chromatins are derivable from the vegetable cell more or less directly. This explains why such care is taken by nature to provide the embryo with a supply of chromatin which will suffice until it reaches that stage of existence when it can maintain the supply from its food. In the placentæ of cats, which I studied, I found that the endothelial cells of the maternal blood-vessels were hypertrophied, that these eventually disintegrated, and that their chromatin was swallowed bodily by the covering cells of the foetal villi. I found, further, that in the glands at the base of the mucosa the epithelial cells proliferate and finally disintegrate, and their chromatin is cast only into the lumen of the gland. Where the foetal villi break through the walls of these glands the foetal epithelial

cells, amoeboid in outline, absorb these chromatin masses and granules. There are also, especially in some of my preparations of the placentæ at a certain stage, solid columns of chromatin in the oval portions of the villi. At a later stage these chromatin masses are smaller and seem slightly changed in chemical composition and are like mucin in some respects. I found also that amoeboid cells were engaged in transferring the chromatin from the neighborhood of the epithelial cells of the villi and from the oval portions of the villi to the blood-channels. The chromatin so transferred from the maternal to the foetal tissues is evidently the vehicle for the iron which the embryo receives and which, as shown by Bunge, is much greater in amount per kilogramme of body-weight in the newborn than in the older or adult animal.

This brings me to one of the problems of this paper. If chromatin is, as I have said, derived as such, either remotely or directly, from the vegetable kingdom, how is it taken into the system? I may say that this is one of the problems which I propose to study in the next few months. Without prejudging the question, it is possible to touch on some of the aspects of it which raise other problems for solution. As I have intimated, amoeboid cells in the foetal villi are concerned in the transference. We may infer from this that the amoeboid cells of the adult, the leucocytes, play an important part as chromatin-carriers. As the covering cells of the foetal villi are from their shape engaged in the absorption of chromatin, it is possible also that the intestinal epithelium of the adult individual is capable of absorbing very small particles of chromatin. It may be that the leucocytes which, as Stöhr and others have shown, wander out into the intestinal cavity or to the free surfaces of the epithelial cells, take up from the chyle particles of chromatin.

If the leucocytes are the principal agents in the absorption of chromatin, we may explain the existence of haematoblasts and the formation of haemoglobin. For in *amblystoma* larvæ at an early stage the first blood-corpuscles are amoeboid; they wander about in the tissues and especially among the yolk-cells, and they in consequence are capable of obtaining a greater quantity of yolk-spherules than the fixed cells. These yolk-spherules contain the haematoxin of Bunge and, therefore, the corpuscles have a greater supply of chromatin, which is utilized in the repeated and rapid divisions of the haematoblasts. This greater abundance of chromatin in the haematoblasts has been noticed by Flemming, Pfitzner, and Peremeschko. Obviously, with a greater quantity of chromatin than the dividing cell usually has, some of it is useless as such, degenerates and appears as haemoglobin. Such,

¹ The pigment of muscle-fibre, the myohaematin of MacMunn, the haemoglobin of Levy and Hoppe-Seyler, in *amblystoma* larvæ, is apparently derived directly from the haematoxin.

² Apparently the animal cell is capable of converting simple compounds into more complicated ones by the process of hydrolysis only, as, for example, peptones in albumins.

ameboid corpuscles are most abundant in the neighborhood of the yolk, and they are collected in large numbers at a certain stage in the smaller vessels connected with and lying on the yolk-holding organ. The blood-current in these vessels being slow the haemoblasts are then delayed where they divide and redivide, and eventually are converted into fully-formed red corpuscles. After a certain stage only one of these collections usually persists. This becomes the spleen, which is thus developed in intimate relation with the hematogen-holding organ. When the yolk is nearly absorbed, the leucocytes make their appearance as such; but I maintain that the first blood-corpuscles of the embryo are leucocytes, or ameboid cells of the same nature and origin as leucocytes, but become haemoblasts because they have absorbed or taken up an excess of chromatin from the yolk. In like manner we may account for the apparent absence of leucocytes from the mammalian embryo up to a certain stage of its history. The first blood-cells are really leucocytes, but as their principal function is to carry chromatin from the villi to the embryonic organs, they are loaded with an excess of chromatin, a part of which, on the *lunus-consumption* principle, they probably convert into haemoglobin. From the absence of leucocytes during the first six weeks of human embryonic life it might be reasonably inferred that the greater part of the chromatin which the embryo receives is obtained during those six weeks.

In adult mammalia the whole or the greater part of the chromatin of the haemoblast is converted into haemoglobin, and as a result the chromatin-holding organ, the nucleus, is no longer necessary, hence it degenerates and disintegrates, as Osler believes, or is extruded from the cell, as Rindfleisch and Howell maintain.

The animal body is very saving of its chromatin. I found this well illustrated in my studies on the pancreas and intestinal epithelium of amphibia.¹ When a cell disintegrated the débris became swallowed by the immediately adjacent cells, the cell-protoplasm of the swallowed particles speedily dissolved, leaving the chromatin alone in cavities of the cell. Secretion on the part of the containing cell continued, but the nuclei enlarged as a result of the solution of chromatin in the cell, frequently to twice its original size. The amount of chromatin in such enlarged nuclei is greatly increased.

Now I come to a brief consideration of what I call the storehouses of chromatin. By this I mean that the giant cells in the bone medulla of higher animals and in the spleen of some mammalia. I cannot enter into the reasons here in this already

long article why I so consider them. It is sufficient to say that these giant cells store up the more or less changed chromatin, so that it can become available to the immediately adjacent haemoblasts, or, to speak more correctly, marrow cells. There are also giant cells in pathological growths, for example, myeloid sarcoma and tubercle. In the former the chromatin is derived primarily from the numerous disintegrated and often from swallowed leucocytes. I believe from my observations, that in tubercle the giant cell is derived in the following way: The epithelioid cells are injuriously affected by the ferment or more probably albumimose secreted or produced by the tubercle bacillus, and also by the lack of such nourishment as a proper blood-supply brings. As a result of this the cells degenerate, disintegrate, and their chromatin is set free. One or more of the surviving cells at the periphery of the tubercle immediately absorb or swallow the free particles of chromatin, and as a consequence nuclei of such cells have to multiply perhaps a hundred times to accommodate the increased supply. With such a supply of chromatin it is not surprising that such cells can withstand their unfavorable environment. Indeed, I believe that the absence of bacilli in many of such giant cells is to be explained on the supposition that they throw out or secrete from their nuclei a compound, albumose or other material, which overwhelms the bacilli. Could we artificially produce that compound we would have a therapeutic agent which would rival all others brought forward since the history of medicine began. I have indicated in one of my papers¹ facts which show that the pancreatic ferment arises from the chromatin of the pancreatic nuclei as a *prozymogen* compound which is deposited in the cell protoplasm, and probably united with an element of the latter as zymogen, and as this gives ferments which are now regarded as albumoses, we may readily believe that Hankin's defensive albumoses are derived from the chromatin of the cells of the system.

As the vitality of the cells and, therefore, of the adult individual depends on the amount of chromatin, we can possibly account for the absence or the presence of the quality of immunity to diseases. Can it be that the individual readily disposed hereditarily to contract, say tuberculosis, has received less than the proportionate amount of chromatin in embryonic life? Has the vigorous individual at such a period received an abundant supply of chromatin? We know that iron is beneficially administered in wasting diseases and often in tuberculosis. Is the explanation of its action that of a tonic or so-called haematinic?

¹ Results of these studies are to appear in a forthcoming number of the Transactions of the Canadian Institute.

¹ In a forthcoming number of the Transactions of the Canadian Institute.

Rather, I believe, that it protects the iron-holding proteids of the food in the intestinal canal from decomposition, and thereby permits a larger quantity of such proteids to be absorbed to increase the chromatin of the system and therefore its vitality? Is it possible to increase the amount of chromatin in the system by any other process than intestinal absorption? Bearing in mind the fact that in the cat's placenta chromatin is transferred from the maternal to the foetal tissues under conditions which constitute complete asepsis, it is possible that a similar endowment of the adult system with chromatin may be brought about by hypodermic injection under aseptic and antiseptic conditions. I think that in the future the latter may be found quite feasible. Indeed, I believe it has already been done by Brown-Séquard, with extracts of the fresh testicle, and that this transference, hypodermically, is the cause of the beneficial results so obtained.

The reader will observe what a large number of questions are connected with the absorption of chromatins. It is not possible to formulate in this article all the aspects of the relation of chromatin to nutrition, and I will merely touch briefly on some of the clinical considerations which present themselves in my mind.

Simple anaemia and chlorosis are usually held to be diseases in which the blood-formation is diminished, and which is caused by the lessened absorption of iron salts from the food. Bunge believes that they are caused by a lessened absorption of the haemagogens of the food, and that this lessened absorption is brought about by decomposition in the intestine of haemagogens through alkaline sulphides. Anaemia and chlorosis in either case are caused by a lessened resorption of those materials which go to form haemoglobin. Now I maintain that *both diseases are primarily due to a lessened absorption of chromatins from the food, and that the diminished haemoglobin formation is merely symptomatic of this condition and does not constitute the primary trouble.* Every cell in the body suffers from want of chromatin, and, as there is a lessened supply of chromatin, less can go to the formation of haemoglobin. With the lessened supply of chromatin the tissues cannot grow to their usual volume through cell-division, and, therefore, we find in the bodies of chlorotic patients, who come to a post-mortem examination, that condition which Virchow describes as *hypoplasia*, and which he apparently believes to be the cause, in some cases, of chlorosis. In these cases the organs, notably the aorta and large arteries, are of narrow calibre, they are not as fully developed as one would expect in such individuals. No doubt the lessened calibre of the great vessels diminishes—through the increased

resistance they offer—the effective power of the heart in driving the blood to the various organs, and thereby diminishes also the nutrition of the various parts, but this I think is a secondary trouble, the primary one being the lessened absorption of chromatins and the thereby lessened proliferation of the tissues in the various organs, the aorta and other bloodvessels amongst these.

Bunge, in one of his papers, hints at the hypothesis that, in young girls at puberty, there is a storage of haemagogens in some organ which are to be transferred to the developing ova when impregnation takes place, and that at puberty in chlorotically inclined patients this organ makes a demand on the haemagogens of the body, which would otherwise go to blood-formation. There is some truth in this view. At the commencement of puberty the ovaries and the uterus enlarge, and the uterine mucosa consequently undergoes an increase in volume; this means, of course, an increased supply of chromatin, and if the system is deficient in this substance chlorosis results. Why should there be a deficiency of chromatin in the body of such individuals? I may say that probably intestinal decomposition of the food-chromatins before puberty might bring about such a diminished supply in the body, but I think I can better answer such a question by asking another: Are there any great variations in the quantity of chromatin which is transferred from mother to child through the placenta? If, as I maintain, the digestive ferments arise from the chromatin of the cells of the digestive organs, any lessening of the usual amount transferred to the child through the placenta must lessen the amount of the digestive ferments secreted in the adolescent body, and, as the supply of chromatin given through the placenta cannot be made up by intestinal absorption, because of the diminished digestive function, the adolescent female reaches the period at which puberty begins with a seriously diminished supply of chromatin, and chlorosis, probably in many cases with hypoplasia, is the result.

As already intimated, the greater part of the chromatin is probably transferred, during the first six weeks of pregnancy, from the mother to the foetus. Are the nausea and vomiting of pregnancy caused by such a transference with a consequently diminished secretion of digestive ferments and lessened digestive vigor? At any rate, the anaemia during and following pregnancy is easily explained, as will be understood from what I have said, by this transference.

Under the so-called pernicious anaemia we apparently group a number of conditions. Some of these I shall treat of again, but at present will refer to one or two forms of this disease. It has been found, on post-mortem examination, that the gas-

tric mucosa is atrophied. In such cases it is evident that the food is only half digested, and, therefore, only half the chromatins are set free from the other proteids, and that only half the usual amount of chromatin is absorbed. Further, the pancreatic fermenters are also probably thereby lessened, and less still of chromatin isolated and absorbed. With atrophy of the gastric mucosa the putrefactive germs gain free entrance, putrefaction in the intestine is enhanced, and it is not surprising that the result is fatal. In some cases of pernicious anaemia, no doubt, there is haemolysis as Hunter has, I believe, shown, and Mott ascribes this haemolytic function to an albumose produced in the intestine and absorbed into the bloodvessels. Such cases more truly constitute blood-diseases than simple anaemia and chlorosis do. We may suppose in such cases of albumose-absorption that the food-chromatins are decomposed by the germs which are the agents in the production of the albumose.

Once again, if the leucocytes are the active agents in the absorption of chromatins from the food, is splenic leukæmia due to an over-resorption of food chromatins?

I have put many of the problems arising out of the relation of the chromatins to nutrition in the form of questions. I hope they will stimulate others to seek for solutions to them, as I have been stimulated to work up the basis on which these problems rest. I may be pardoned for believing in the importance of these problems, for who could think and work for four years on subjects such as I have here treated of without considering them to be of great value. I may also say that I think more attention ought to be paid to the physiology of cells than is done even at the present day. Cytologists have been principally engaged on the structure of the cell, because results are more easily won in that line. From what is here said I hope more attention will be directed to the great value of the study of the seemingly hidden processes which are grouped under the name of cell-physiology. If we could particularize as to what changes other than structural occur in the cell, we might generalize about the colony or the mass of cells, or the individual formed out of them. In that case also we probably could do in the way of therapeutical treatment what we think fanciful and extravagant now. In any case I hope I have thrown a little light on a dark road, along which we may travel there is no knowing how far. It will be seen in the several papers which I shall publish upon the subjects touched on here on what evidence my views rest.

CLINICAL MEMORANDUM.

PÆDIATRIC.

The Treatment of Convulsions in Children.—In a case of convulsions in a child, if the patient is cyanotic, a few whiffs of amyl nitrite, followed by inhalations of chloroform to relax spasm, should be given. These should be followed as soon as possible by hypodermic injection of tincture of veratrum viride, one-half drop for each year of age up to six years. The veratrum may be repeated in half an hour or an hour if the convulsions recur. If the convulsions are uræmic, a small dose of morphine may be added or given separately.

In all the cases in which I have employed the foregoing treatment the effect was remarkably good, and in but one case have I had to repeat the injection of veratrum. The convulsions cease, the muscles relax, the pulse becomes slower, the temperature falls, and the skin becomes moist.

Indeed, the danger is over in less time than by any other means I have seen employed.

Appropriate after-treatment, as may be indicated, should of course be adopted.

THEODORE G. DAVIS, M.D.

BRIDGETON, N. J.

ORIGINAL LECTURES.

PLEURITIC EFFUSION—SOME PECULIARITIES OF TYPHOID PNEUMONIA—THE TREATMENT OF CONSUMPTION BY KOCH'S LYMPH.

*A Clinical Lecture
delivered at the Pennsylvania Hospital.*

BY J. M. DA COSTA, M.D., LL.D.
OF PHILADELPHIA.

CASE I.—Gentlemen: I thought you would still be interested in this case of effusion into the chest that was before you on another occasion. The man has been doing remarkably well, and we have had no occasion to change the treatment that was ordered when you last saw him. You remember that at that time he was placed upon 20 grains of acetate of potassium, 15 drops of the tincture of the chloride of iron, and 5 drops of dilute acetic acid in syrup of lemon and water every fourth hour. The affected side was painted with tincture of iodine, his diet was restricted almost exclusively to solid food, and, in addition, two or three times a week he had a saline laxative consisting of two drachms of sulphate of magnesium, which was sufficient to produce free action from the bowels. Under this treatment we have had excellent results. His heart which, as you may remember, was displaced, is now in its natural position; you will recall the dulness on the right side, which does not begin until the midsternum is reached, indeed, a little to the left of midsternum. The region over the lungs shows no dulness until we reach the sixth rib, and at the upper part of the chest, both anteriorly and posteriorly, we have vesicular breathing. About the fourth rib anteriorly a friction-sound is perceived, but the vesicular breath-sounds can be heard even low down in the chest posteriorly until we come to the very lowest limits, where they are still feeble. The vocal vibrations

are also heard naturally until quite low in the chest; the fremitus is not, however, perceived below the angle of the scapula, it has not improved in proportion to the other physical signs, but, considering the whole result, it may be said that the effusion has almost disappeared. Under these circumstances we can do nothing better than to continue this treatment. I believe complete recovery will soon take place.

TYPHOID PNEUMONIA, WITH OBSERVATIONS ON ITS TEMPERATURE-RECORD.

I had ready for you two cases of typhoid pneumonia, but I shall have to limit myself to exhibiting one case only, because in the second case, while he is doing well enough as regards the typhoid pneumonia, a complication has developed in the shape of a swelling of the glands of the neck which makes it too great a risk to move him from the ward. I will show you this case, however, which is a very typical one. He was admitted on December 29th, and at that time had had fever and cough for three days. The sputum was admixed with blood, he had a pulse of 120, respirations of 36, and a temperature of 103° , which soon rose to 104° . There was impaired resonance at the upper part of the left lung anteriorly. Anteriorly the right, from the clavicle down to the fourth rib, was dull on percussion, and posteriorly it was dull throughout. There was also slightly-impaired resonance at the lower part of the left lung. The breath-sounds on the left side were harsh and accompanied by crackling râles at the upper part. On the right side anteriorly there existed bronchial breathing down to the fourth rib, and posteriorly an occasional moist râle. There was, therefore, lobar pneumonia of the right lung, except at the lower part anteriorly. On the left side there was also bronchial catarrh as a complication and some consolidation at the apex, so that, in some respects, we might have called this a case of double pneumonia.

There were other points of interest in the case. The man presented a dry, cracked tongue like that of typhoid fever, a pulse of 120, which, however, after a day or two declined to 108. The pulse was very fluctuating, occasionally reaching 124. The respirations varied between 36 and 54; the sputum remained rusty, great exhaustion manifested itself, and, in truth, what might be called a typhoid condition became so marked that we entertained, though we set it aside, the possibility of the case being one of typhoid fever with a lung complication. The man's nervous phenomena were those of wild delirium, and so wild was the delirium that he had to be strapped. While, then, the signs of the disordered nervous system, the dry tongue, the frequent pulse, the evident exhaustion, the sweating, all pointed to a typhoid state, the bowels remained in their natural condition—about one movement daily. The passages were not liquid except on one day, when there were several. He never had an eruption. The case was so strikingly like one of typhoid fever that we had our minds on that possibility for some days. Now, however, it is proved that the first impression was correct, it was simply a case of typhoid pneumonia with grave symptoms referable to the nervous system and with the signs of marked prostration.

This morning you see him in a very much better

condition than when he came into the hospital. His tongue is becoming moist, the delirium ceased three days ago; his pulse this morning is only 60; his respirations are 22, and his temperature 97° , the highest temperature being 104° , so that you see before you, certainly as regards his rational symptoms, a convalescent.

Now let us see how these symptoms correspond to the physical signs. You may recollect that we had some dulness of the left apex; that is now gone, the percussion resonance there being clear. On auscultation there is simply slightly harsh vesicular breathing. The area of consolidation has therefore gone. On the right side, where marked disease existed, we have now clearness on percussion anteriorly and, what is very interesting, under the right clavicle, the middle of the right lung, the sound has a slight tympanitic admixture, a condition of things to which I called your attention in a previous case. On auscultation anteriorly we have harsh but vesicular breathing, mixed with a few, rather coarse, moist râles, so that it is evident that almost complete resolution has taken place. When I tell the patient to get up he does so with difficulty, and on auscultating the back I find that the bronchial sounds have disappeared, but there is some harsh respiration, with rather marked expiration near the angle of the scapula; the breathing is everywhere vesicular, however, with a few coarse râles. Therefore, practically, the pneumonia is over. This is a very gratifying result, if you remember how very ill this man was.

Before I take up the subject of his therapeutics, I will say that the urine was examined throughout and showed no albumin. I wish also to call your attention to the temperature-chart, which is very interesting. You see here the elevations of temperature. I will not go into details, but they range between 103° and 104° ; after reaching 104° there are slight variations, and then a rise to $103\frac{1}{2}^{\circ}$ until the 27th; and from that time on, with slight rises, the temperature gradually, but uninterruptedly, fell, so that this case of typhoid pneumonia has convalesced as many cases of ordinary pneumonia do, by what you might call a crisis. The temperature-chart is singularly interesting from this point of view. If we had had any doubt that this case was one of typhoid fever with lung complication, on account of the gravity of the other symptoms and the typhoid condition which appeared to be present, this temperature-chart would be most significant. This leads me to remark that the diagnosis between typhoid fever and typhoid pneumonia is often an extremely difficult one on account of the symptoms called, for convenience' sake, typhoid, namely, impairment of the nervous system, dry tongue, signs of exhaustion, and the like; but what you do not have are the characteristic temperatures of typhoid fever. Again, you do not find, or certainly very rarely, in typhoid pneumonia a sustained temperature; in other words, you will have the ordinary temperature of pneumonia—the time will come when the temperature drops so rapidly that you will have something approaching to a crisis, without the rises and falls found in the beginning of convalescence from typhoid fever. Further let me say that while the temperature-curve in typhoid pneumonia is, in the main, similar to that of ordinary pneumonia, yet what is called the crisis, viz., the sudden cessation

of the fever, is more prolonged in typhoid pneumonia than it is in ordinary pneumonia. In the case before us this crisis has extended over four days, whereas in an ordinary case of pneumonia it would have taken place in twenty-four or, at the utmost, thirty-six hours.

Now that I have explained to you this case from a pathological and diagnostic point of view, let me make some remarks as to its treatment. When he was admitted he was given a fever mixture of citrate of potassium, together with carbonate of ammonium; he also had twelve grains of quinine daily. To this treatment turpentine was added on the 28th, ten drops every fourth hour. Occasionally we gave him hyoscine at night, in doses of $\frac{1}{12}$ th of a grain, which quieted him, and gave him relief for two or three hours; especially quieting the delirium. This is an interesting example of the usefulness of hyoscine in acute diseases. On the first few days, half an ounce of whiskey was given him every fourth hour, but when the typhoid symptoms showed themselves we gave it to him every second hour. Of course, he was given nourishing food, milk, broth, and the like. For the rise of temperature, which exceeded 104° on one occasion, salicyl-bromalin was given—the new compound of salicylic acid, bromine, and anilin, which is to take the place of phenacetin. The drug was given in doses of five grains, and the effect in this case was good. In these doses it at once reduced the temperature a degree and quieted the nervous system. We had previously given the patient phenacetin, so that the observation was an interesting one, and while we found, on comparing the effects of the two drugs in the same case, that phenacetin in small doses lowered the temperature more (even three grains had more effect than five grains of salicyl-bromalin), yet as regards its influence in quieting the nervous system, in the procuring of sleep, in the lessening of delirium, and in the general effect on nervous tension, the new remedy proved the better.

It is instructive to study the delirium in this case, and to see how it was influenced by the different drugs and by stimulants. Remember that it was so violent that we had to restrain the man in bed by force. The greatest effect from any of the agents we used was from hyoscine. Atropine and morphine, which we employed on one or two occasions, had very little effect in doses of $\frac{1}{6}$ th of a grain of morphine and $\frac{1}{12}$ th of a grain of atropine. The stimulants neither increased nor diminished the delirium. Next to hyoscine, the best effects were from the salicyl-bromalin. We have, therefore, studied this case therapeutically, and I hope you have learned some valuable lessons in treatment. We have learned that sustained nourishment, stimulants, and quieting the nervous system, are the most important points in the treatment of typhoid pneumonia; if you will keep up the patient's strength the pneumonia will undergo resolution, or at least you gain time for other remedies to act.

CASES OF EARLY PULMONARY TUBERCLE TREATED BY KOCH'S LYMPH.

I wish to show you, in conclusion, two cases of early tubercular disease treated by the Koch method. As you will see from the long temperature-charts and papers, we have worked upon these cases carefully; or, rather, let us give credit where it belongs, the resident doctor and the nurses have worked most admirably and assidu-

ously. It is no easy matter to conduct cases under Koch's treatment accurately and scientifically, because they take a large amount of time, especially because the temperature must be taken every hour or two, often at night.

I show you these two cases because I think we have had them long enough, and watched them closely enough to reach some conclusion with reference to them; moreover, they were especially selected cases out of a number that were presented to me. I choose these two cases for the following reasons: They were free from fever, or had almost no fever; there were no signs of softening; they were comparatively early cases, and in good general condition, except in so far as any disease like phthisis would impair the general condition. Moreover, we took the precaution for more than a week beforehand to study the physical signs and the sputum, the latter being carefully examined for bacilli; and we took every opportunity to watch the cases while uninfluenced by remedies. Though much alike, I will take up the cases separately.

P. C., aged twenty-five years, admitted December 22, 1890. There is no family history of phthisis. He had been working in a foundry, and subjected to sudden changes of heat and cold; had to stop work two weeks before admission. He has been growing weak and losing flesh, and has had cough for six months, but no night-sweats. He has never been ill before. The cough is very troublesome, especially at night.

The physical signs were as follows: The circumference of his chest was $34\frac{1}{2}$ inches, and there was expansion of one inch. Anteriorly on the left, the percussion-note was good; on the right, dull down to the second rib. The sounds at the left apex were harsh and the expiration prolonged; at the right apex very harsh, or rather there were feeble inspiration, prolonged expiration, and dry crackling râles; below, the sounds were impaired, and there was an occasional râle; that is to say, the vesicular sound was heard, but impaired. Posteriorly at the left apex, percussion-note dull, at the middle impaired, and at the base good. On the right, percussion-note dull all the way down, and impaired in the right axilla. Therefore there was a general infiltration without any softening on the right side, with localized physical signs of a greater amount of consolidation to the fourth rib. His cough was, as I said, especially troublesome at night. The expectoration was greenish, muco-purulent, and bacilli were found in moderate quantities. There was almost no fever before he received the injections; his evening temperature was never higher than 100° , and reached that point on only two occasions; as a rule, it was 99° . Now, gentlemen, having had him under observation here before we began the injections, from December 22d to January 3d, when the first injection was made, I think we are in a position to say that he did not vary much from his previous condition; I think his cough, under rest, and the slight amount of anodyne which he took when he was unable to sleep, grew somewhat better. We began the injections with a small amount of lymph, only a milligramme, or even a little less; then we gradually increased the amount, and took the precaution of always letting a few days elapse between the injections, so as to get him back to a perfectly natural condition. We have now given him six injections. At first, after the small injections, there was very little reaction, but after the later injections there has been

very distinct reaction; on one occasion, after the injection of three milligrammes of the fluid, the temperature even reaching 104° . The full reaction from these three milligrammes, however, did not occur until the next day. I see marked on the chart another great rise, which was after four milligrammes were injected. Since then he has twice been given four milligrammes with very slight rise. Now, from four milligrammes, the third injection before the last one, the temperature went up to 103° ; we know then that at present the dose, which can be given to him without much reaction, is four milligrammes.

Time will not allow me to go as fully into the description of the second case as I have into the one you have just seen, but here is the temperature-record, and you will see that there are the same rises of temperature, and tolerance after a time to the same dose as in the first case; or, rather, in the second case it requires at present a larger dose (six milligrammes) to produce the reaction. The temperature goes up now very little above the normal, at the last injection rising only to 100° . It is evident, therefore, that the dose will have to be increased, and we will give him eight milligrammes at the next injection. The dose for the first case shall be in the future five milligrammes.

Now you will want to know what effects other than the reaction have been produced in these cases—I can speak of the two cases as one, for the action has been very similar in each. Whenever there was marked reaction there were lassitude, languor, and pain in the limbs the next day, just as Koch has stated; when the reaction was slight these symptoms did not occur: in that respect our observations are entirely in accordance with the now classical description given by Koch. As regards the sputum, it undoubtedly has been very much diminished in amount, and the patients expectorate more easily. We found bacilli in abundance in the expectorated matter; some of them were living, others were materially changed, and seemed to be shorter and swollen, an effect that has been noticed by other observers. Then, again, the men say that a day or two after each injection they have a little soreness in the chest; my attention was particularly called to this in Case I., and on examination I found a friction-sound on the right side at the limit of the previous dulness, and I really think that the dulness was increased in extent; certain it was that the lung was more congested at this point, and that there was an intercurrent pleurisy. Thus there seems to have been a well-marked increase in the area of irritation or congestion in the first case. It is very significant that whenever we allowed five days to elapse without giving them anything, these fresh spots of irritation cleared up very materially, so that the pathological condition was a passing one. At present these cases are free from fever except after the injections—in that respect they are in the same condition as when the treatment was commenced.

Now, gentlemen, you will want to know something more general. I will make a few remarks concerning the constitutional effects. Undoubtedly the freeing of the expectoration, the large number of bacilli that are found in the sputum, the signs that an active process is determined in the diseased parts by the injections, have all been confirmed by a trial of these two selected cases. As regards their feelings these patients express themselves as better, and it is significant that their cough is

improved; they do not cough as much at night now, and they sleep well; so that these patients have improved under no other remedy than the lymph. When we come to the graver question, namely, Are they cured? I must say no. I did not take the time this morning to go into a physical exploration of their chests, but I have done so within a day or two, and in both instances the physical signs were very little changed from those noted at the time of their admission. So that, although the signs of disease in the lungs are, strictly speaking, not improved, the general condition is improved. In the first case, however, the resident physician thinks there is a little freer breathing and a little clearing up on the right side. There are no night-sweats, but there were none before the beginning of treatment. There is but little or no change in body weight in either case.

These two cases, and other cases which I have watched, have led me almost to the following conclusions, though I admit that it is premature to come to any general conclusions concerning so new a remedy: First, that Koch's lymph is of very little use in the treatment of consumption in cases in which softening has commenced. Second, that in early cases of pulmonary consumption, and the cases before us are strikingly in favor of this view, amelioration takes place in the general condition.

These two cases are of particular interest, because no other treatment has been pursued; they are having the rest and regulated food of a hospital, but no medicines. Their cough and breathing are better. Therefore, in the early cases, amelioration unquestionably takes place in the general condition under the use of this remedy.

Now, you will ask me, Does cure take place? Is the lymph a specific? I say again that it is premature to speak of it as a curative agent; having watched cases for some time I can frankly say that I see nothing as regards the physical phenomena from which I could expect a cure, nor have I, in reading the records of cases, been able to see that any observer whose opinion is of weight has brought forward a single case in which a cure has been proved. The remedy, therefore, is applicable to the earlier cases only—giving a certain amount of relief, but I question whether, even in the early cases, it will have a distinct curative effect. This opinion does not apply to the effects of the remedy on lupus or on tubercular disease of the joints; in such cases great good has already been accomplished, but I have had no experience with it except in pulmonary tuberculosis. Again, I believe it best, when you employ the remedy, not to repeat the injections too rapidly. Let the patient completely recover from the effects of each injection.

Let me call your attention to two other points: First, no case should be treated unless we have at the same time control cases; you should select a case of almost the same character as regards extension of the disease, and put him on remedies that will for the time being relieve the cough, and see what they will do under the hospital discipline and regulated food. This is what we are doing with some cases now in the ward. Secondly, I must raise my voice against the use of this remedy for diagnostic purposes. Since the knowledge gained by the reports of recent autopsies made by Virchow, I think

it would be cruel to subject the patient to the risk of the dissemination of the disease; we do not yet know anything certain about its composition, though we have been told that it is derived from the culture of tubercle bacilli, and if used for diagnostic purposes we may disseminate tubercles in a person in whom the disease was local. Therefore, do not use this for diagnostic purposes; we have no right to subject a person to the possibility of becoming tubercular in order to settle a diagnosis which, in nine hundred and ninety-nine cases out of a thousand, can be settled by other means. I think, with our present knowledge, it is rash—criminally rash—to employ it for such a purpose.

MEDICAL PROGRESS.

A Powder for Vegetations of the External Genitals.—URRIOLA is said to use the following prescription for the removal of these growths:

R.—Salicylic acid	30 grains.
Acetic acid	1 ounce.

This mixture may be applied once or twice a day by means of a small brush. The pain is very slight and fugacious, and Urriola believes that this treatment is preferable to any other.

Ointment for Eczema of the Nipple.—BRAUN is stated to recommend the following prescription in this condition:

R.—Calomel	45 grains.
Carbonate of magnesia	40 "
Cold cream	1 ounce.

This ointment is to be applied with friction to the part which is affected. The reddened and sensitive areola which surrounds the excoriation should be anointed night and morning with the glycerole of tannin. All applications should be carefully wiped away before the infant nurses.

The Treatment of Sycois.—ROSENTHAL recommends the following treatment for sycois, stating that it possesses three advantages: 1st, the absence of pain; 2d, the relatively rapid cure; and 3d, facility of application.

The part which is affected should be shaved very carefully, and morning and night, for three days, the following ointment should be applied:

R.—Tannic acid	3 grains.
Precipitated sulphur	30 "
Vaseline	5 drachms.

During the day the diseased area is not covered, but at night he applies an emollient ointment, consisting either of salicylated vaseline or vaseline alone. Care should be taken that no application containing lead be applied to the face during this treatment, else the sulphur will cause the formation of sulphide of lead and blacken the skin. In other cases the following prescription will be found wonderfully effective:

R.—Tannic acid	75 grains.
Precipitated sulphur	2½ drachms.
Oxide of zinc } of each	4 "
Starch } of each	4 "
Vaseline	1½ ounces.

This ointment should be applied morning and night, and the treatment should be completed by epilation.

An Emulsion for Tapeworm.—*La Semaine Médicale* gives the following prescription of LA MERE for the treatment of tapeworm:

R.—Extract of male fern	1½ drachms.
Calomel	7 grains.
Distilled water } of each	½ ounce.
Syrup of gum arabic } of each	½ ounce.
Powdered gum arabic, a sufficient quantity to make an emulsion.	

Before this mixture is administered it should be well shaken, and the patient should be directed on the day previous to its use to subsist entirely upon a milk diet. It is stated that the worm will be expelled in from thirty to forty minutes after the administration of this medicament, if these directions are carefully followed. In children aged from six to twelve years, one-half this quantity should be given.

Creolin in Infantile Diarrhoea.—According to *La Semaine Médicale*, SCHWING recommends the following mixture for infants who are suffering from diarrhoea:

R.—Creolin	1 to 3 drops.
Cinnamon water	2½ ounces.
Syrup	½ ounce.

Mix, and administer a coffee-spoonful every two or three hours. For older children, the following may be employed:

R.—Creolin	15 grains.
Sugar	75 "

Mix, and divide into from five to ten powders, and administer from one to two powders each day.

Ligation of the Saphena Vein in Cases of Varicose Veins.

—TRENDELENBURG (*Beiträge z. klin. Chirurgie*) advocates double ligation and division of the large saphenus vein in the treatment of varicosities of the trunk and branches of this vessel. He points out that the most dilated portions of the affected vein are below, and not, as generally supposed, above the valves. The walls of the vessel, being weaker here, yield more readily to the pressure of the blood when the valves cease to act. He also thinks that most of the blood which fills the dilated trunk and branches of a varicose saphenus vein is derived from above, and that but a small part comes from the capillaries of the foot and leg. It is this free downward pressure of blood along large and dilated vessels deprived of valves that causes the profuse and dangerous haemorrhages, so frequently produced by a breach of the surface of the leg in which the veins are varicose. The conclusion that the results of the condition are chiefly due to the fact that the varicose branches of the great saphenus, in consequence of associated dilatation of the trunk of this vessel, are no longer separated from the cava by valves, has led Trendelenburg to treat varicosity by permanently obstructing the saphena at one point, in order to prevent the descent of the blood from the abdomen. The author refers to a series of cases in which good results followed the application of two cat-

gut ligatures near the saphenous opening and division of the vein between.—*British Medical Journal*, January 24, 1891.

Dangers of Vaginal Injections.—DR. ROULIN (*Journal de Médecine de Paris*) describes three cases of severe suffering from the use of vaginal injections. In one case the woman used a douche with the reservoir rather high. Immediately after the injection violent hypogastric and lumbar pain developed, followed by vertigo and vomiting. The abdomen was not sensitive to pressure. Metrorrhagia followed and lasted for two or three days, the pain ceasing within twenty-four hours. The second case was similar, except that the patient used a hand syringe and the symptoms were less severe. The third case also used a hand syringe, and while making the injection felt sudden pain in the abdomen and lumbar region, which was soon followed by rigors, but not by vomiting. The pain in this case also disappeared on the third day. In all these cases Roulin employed enemas of laudanum.

The cause of the pain is obscure, but the author believes that in his cases water may have entered the uterine sinuses, and insists that patients must be taught how to give themselves vaginal injections. The woman should lie on her back, should introduce the nozzle of the syringe for a short distance only, and must not inject the fluid with much force into the vagina.—*British Medical Journal*, January 24, 1891.

Chlorosis and its Treatment.—DR. FREDERICK SCHOLZ, of Bremen, has published a remarkable work on chlorosis, the outcome of observations made during the last twenty years. Instead of regarding the deficiency of iron or haemoglobin or even that of the red corpuscles as the primary affection, he states that contraction of the vessels is always present in these cases, and this, he contends, is not to be regarded as a complication but as the primary condition, which is followed by the morbid changes in the blood. The vessels are, he thinks, too full and the blood abnormally serous. Long ago he was impressed by the cold and livid condition of the skin in anaemic subjects, and he was led by this to employ hot baths together with gentle friction, with the object of improving the vitality and nutrition by acting on the skin. The success of his first attempts was so marked that he has persevered in this line of treatment. Hot baths diminish the plethora by relaxing the tension of the vascular system, which is high, quickening the circulation, and thus relieving the palpitation, dyspnoea, and other symptoms. In thirty cases with great distress Dr. Scholz has gone a step further and supplemented the hot baths by venesection. Paradoxical as this method of treatment may appear, it was followed by marked benefit, and, if the foregoing theory of the pathology of chlorosis be correct, there can be little doubt that the course pursued by Dr. Scholz is justifiable.—*Lancet*, January 24, 1891.

Operative Treatment of Diaphragmatic Hernia.—POSTEURSKI operates in cases of traumatic hernia through the diaphragm, by forming a flap on one side of the base of the chest, resecting one or two ribs, opening the pleural cavity and suturing the rent in the diaphragm after

replacing the escaped abdominal viscera. The flap is then united, no drainage being required. Six cases have been successfully treated by this method in the hospital of Rome.—*Lancet*, January 24, 1891.

Artificial Teeth Impacted in the Larynx for Twenty-two Months.—At the recent meeting of the British Laryngological and Rhinological Association, Mr. LENNOX BROWNE reported the case of a woman in whom a plate of four artificial incisor teeth was impacted in the larynx for twenty-two months. Laryngological examinations had been made by two other physicians who thought that the trouble was due either to tuberculosis or cancer of the larynx. Mr. Browne extracted the plate by a pair of rectangular forceps, the patient being partly under the influence of chloroform. After the operation it was learned that the woman was an epileptic, and that she had awakened one morning with vomiting and dyspnoea which persisted for thirty-six hours. When she recovered from this attack her teeth could not be found, and it was assumed that they had fallen into the vomited matter and been thrown away. Up to the time of Mr. Browne's examinations it had not occurred to any one that the cause of the dyspnoea was a foreign body.—*Journal of Laryngology and Rhinology*, January, 1891.

Mouth-wash for Stomatitis.—DAVID uses the following mixture as a tonic and antiseptic mouth-wash:

R.—Thymol	7 grains.
Borax	15 "
Water	1 $\frac{1}{2}$ ounces.

A few drops of this are to be placed in a wineglassful of warm water, and the mouth rinsed with it. In cases in which the breath is fetid, owing to deposits about the tonsils and gums, the following wash is said to be serviceable:

R.—Borate of sodium	15 grains.
Alcohol	$\frac{1}{2}$ drachm.
Water	1 pint.
Thymol	7 grains.

Application for Toothache.—BARDET is said to recommend the following prescription for application to cavities in painful teeth:

R.—Iodoform	$\frac{1}{2}$ ounce.
Oil of peppermint	5 drops.
Oil of bitter orange	1 drop.
Oil of lemon	2 drops.
Tincture of benzoin	1 drop.

Or, the following may be employed:

R.—Chloroform	2 drachms.
Naphthaline	10 grains.

To be applied to the cavity on a small piece of cotton.

Treatment of Furuncle.—L'Union Médicale recommends for the treatment of furuncles washing the region which is affected with a 1-to-40 solution of carbolic acid, or, what is equally effective, with a 1-to-500 solution of bichloride of mercury. After this is done, carbolized oil may be placed over the part, and, finally, a powder composed of equal parts of iodoform and oxide of zinc. This treatment frequently causes resolution and prevents maturation of the boil.

CURRENT LITERATURE.

SATURDAY, FEBRUARY 21, 1891.

RESECTION OF THE WRIST-JOINT.

DR. E. HOFFMANN reports a resection of the wrist-joint with dorsal transverse incision. The case was one of extensive caries with nearly complete loss of the functions of the hand and fingers. Langenbeck's radial and Lister's ulnar incision were connected by a third one, corresponding to the articulation between the two rows of metacarpal bones. The two flaps were dissected upward and downward respectively, and the whole diseased focus removed *en masse*, including the carpal end of the metacarpal bones and the distal extremities of the radius and ulna. The diseased portions of the extensor tendons of the hand and fingers with their sheaths were also removed. The bones were approximated by periosteal catgut sutures and the ends of the carpal extensors sutured to the metacarpal periosteum and to the tendons of the extensors of the fingers. The wound was closed without drainage. Primary union followed.

Four weeks after the operation the hand was placed on a palmar splint, in the position of dorsal flexion, the fingers being left free for active and passive movements.

Union is good, and motion is satisfactory and gradually improving.

This method of operating is recommended in all graver forms of caries of the wrist-joint. The surgeon has ample room, removes the whole focus of disease without tearing the tissues and, therefore, obtains better and more rapid union.

The report of a number of ankle-joint resections by the method of Hueter, as modified by Helferich, is promised. The method consists in making a large dorsal flap of skin, fascia and tendons by a transverse metatarsal incision connecting the ends of two longitudinal incisions.—*Deutsche med. Wochenschrift*, December 25, 1890.

DIABETES INSIPIDUS AND ADIPOSITUS UNIVERSALIS.

Voss reports a case of diabetes insipidus with adipositus universalis in a girl seventeen years old.

The latter pathological condition developed after the diabetes had been present for three years, and was especially marked on the trunk. The external genital organs and the breasts were insufficiently developed, and there was primary amenorrhoea. Inosit was present in the urine in an average quantity of 0.6683 grammes per diem.

Antipyrine in increasing doses until 1½ drachms daily were given, affected neither the quantity nor quality of the urine.

With regard to the etiology of the affection, the evidence tends to show that disregarding the rare cases following insanity or trauma of the vagus, a primary polyuria must be assumed. This may be due

to pathological changes in the secreting structures of the kidneys, *i. e.*, nephritis, in which case albumin is found in the urine; or to increased intravascular pressure, which in turn may be caused by abnormal propelling power or abnormal resistance in certain vascular areas. The latter condition is caused by vasomotor disturbances due to nervous impressions, as proved by Eckhard, who obtained polyuria after stimulation of the veriform process of the cerebellum without increased intra-aortic pressure, but failed to get it after division of the splanchnics. Whether affections of the coeliac plexus have the same effect remains unsettled and doubtful.

As general causes may be mentioned, cold, inattention, intoxication (especially with diuretics), infectious diseases, scrofulosis, etc.

Any and all of these causes could be excluded in the case reported by Voss.

The development of the adipositus universalis is explained by the author in the following manner:

While the desire for food in the first four years of the disease was slight, with the development of puberty (in the fourteenth year) nature made an effort to stimulate the development of the organism, as shown by the increased desire for food; puberty, however, remaining undeveloped, the surplus food formed useless fat. At the same time the natural physiological stimulus for proper blood-formation—menstruation—being wanting, the girl became chlorotic, and thus the more predisposed to adipositus.

Regarding the action of antipyrine in diabetes insipidus, the author believes that it is most likely to do good in that form of the affection due to central nervous disease.—*Berliner klin. Wochenschrift*, January 5, 1891.

PARTURITION IN AN IRREDUCIBLY PROLAPSED UTERUS.

FAIVRE reports a case of parturition in a woman who had already given birth to fourteen children, and who was suffering from an irreducible uterine prolapse. The tumor protruding from the vulva was pyriform in shape, and was composed of the lower uterine segment, which was the seat of great hypertrophy and was also enormously edematous. The lips of the os were lacerated and extensively ulcerated. The greatest circumference of the mass was thirteen and one-half inches; the distance from the clitoris to the angle formed by the union of the anterior wall of the vagina and the base of the prolapse—most of this surface being ulcerated—was five and one-half inches; from the clitoris to the os, seven and one-half inches; from the fourchette to the union of the base and posterior vaginal wall, two and three-fourths inches. When the woman came under Faivre's care she was confined to bed, the foot of the cot being elevated by three bricks placed under it, and was not permitted to raise herself. Under the influence of these measures the prolapsed mass notably diminished in volume and became less edematous. The genupectoral position, assumed for varying periods of time, was found to be of no service and to give rise

to much suffering. Gestation being protracted beyond the normal limit, it was decided to interfere with its further progress. The patient was anaesthetized by chloroform, Barnes's small forceps were applied, and the child was delivered by traction and expression combined. For several days after delivery the mass protruding from the vulva gradually decreased in size and the woman's condition improved. This diminution ceasing, perineorrhaphy was performed three weeks after delivery, with temporary relief. Some months later it was found necessary to perform a combined operation upon the vagina and uterus, consisting in a high amputation of the neck, a large, anterior colporrhaphy, a colpo-perineorrhaphy, and shortening of the round ligaments, which resulted in an absolute cure.

It is evident that, in this case, taking into consideration the irreducible nature of the prolapsed portion of the uterus, the contractile efforts of the uterus were exhausted upon the mass instead of acting upon the cervical canal and expelling the foetus. A second difficulty, and one which was an insurmountable obstacle to delivery, was the resistance offered by the enormously hypertrophied and rigid cervix, upon which the already weakened muscular forces had absolutely no effect.—*Archives d'Obstétrique et de Gynécologie*, December 25, 1890.

THE OPERATIVE TREATMENT OF TRICHIASIS AND DISTICHIASIS.

Of the two principal operative methods in the treatment of distichiasis and trichiasis, that of Jaesche-Arlt and that of Snellen, RAEHLMANN prefers the former for the majority of cases. Its principal advantage lies in the fact that the apposition of the inner margin of the lid to the ocular conjunctiva is not disturbed, and the eye retains its physiological protection, while in resection of the tarsal cartilages (Snellen) the whole lid with its internal margin is lifted away from the eyeball.

Raehlmann holds that the entropium cannot be produced by the action of the central fibres of the orbicularis palpebrarum—the muscle which he, like Jacobson, considers the chief causative factor of entropium—if the conjunctival surface of the lid, and especially its margin, remain in apposition to the ocular conjunctiva.

If, therefore, after trachoma the hollows of the curved cartilages are completely filled with scar-tissue so that the inner surface of the lid fits the globe of the eye, entropium does not result, but is inevitable if softening of the cartilage and its curvature occurs.

In the latter cases Snellen's operation is indicated. Both methods are perfected by transplantation of skin or mucous membrane as originated by Thiersch.

In the course of the last six months seventy-four transplantsations of this kind were performed in the author's clinic. While in former years he, as well others, had numerous failures due to shrinkage and necrosis of the transplanted flaps, in this series failure resulted in only two cases. These excellent results he attributes to the perfected technique of the operation, consisting preëminently in the prep-

aration of the transplanted flap, and also in the exact apposition by sutures.

The margin of the lid is first split, and while the surfaces are cleansed and the haemorrhage completely stopped, the flap is prepared as follows: After resecting a piece of skin and subcutaneous tissue, it is placed with the epidermal side downward on a warm porcelain plate, and all tissue is removed down to the rete Malpighii, till a yellowish-gray, pale, and nearly diaphanous surface remains.

This preparation has several advantages: First, since the remaining fibres run in the direction of the surfaces and not obliquely or vertically to them, as in the subcutaneous tissue, curling in of the edges is prevented and exact apposition facilitated; second, the elasticity of the flap is decreased and shrinkage less liable to occur; third, all hair-follicles are removed, and hence the development, after the operation, of hairs in the transplanted portion is prevented. The flap is always cut larger than the fresh surfaces on the eyelid.

Through the sides and the extremities of the flap needles are passed from the epithelial surface. The flap, with the epithelium still downward, is now transferred to a piece of linen, and while the assistant presses it into the gaping wound the stitches are inserted. As soon as the flap becomes red, usually on the third day, the stitches in the longer edge are removed, and a day later those in the corners. The operation has the further advantage that no special bandage or special attendance is needed, and many of Raehlmann's patients did not even leave their occupation.

Since the author found that flaps of mucous membrane are more liable to shrink and to be thrown off, he has used skin-flaps exclusively in canthoplasties; but transplantation of mucous membrane has several times been employed as a substitute for lost conjunctival tissue in cicatrical symblepharon.

Raehlmann obtained relatively good results by transplantation of flaps of skin and of mucous membrane in extensive retraction of the ciliary margin in order to lengthen the lid. This double transplantation is applicable to cases in which, according to Klarer, the anterior margin with ciliae has been removed and later a contraction has taken place—and to a still greater extent it is indicated in xerosis of the mucous membrane.—*Deutsche medicinische Wochenschrift*, January 1, 1891.

THE ARTICULAR AND PERI-ARTICULAR COMPLICATIONS OF DIPHTHERIA.

DR. M. B. LYONNET thoroughly reviews the subject of articular and peri-articular disorders consecutive to diphtheria. These complications he has found are very rare, and he declares that, in the language of Trosseau, "diphtheria does not like the articulations." Although the complications are rare, cases are on record in which serious involvement of the joints in an inflammatory process greatly prolonged convalescence from diphtheria. It is evident that this arthritis is quite distinct from acute articular rheumatism.

The production of the arthritis may be explained in three ways:

1. In certain cases it may be due to the simple localization of the pathogenic germ upon the articular serous membranes. It is caused, in short, by a generalization of the primary microbial infection, as in the experimental arthritis produced by Max Schuller, and more recently by Babinsky and Charrin (*Société de biologie*, July 27, 1889, and *Société anatomique*, July, 1889), in rabbits suffering from pyogenic diseases.

2. In other cases it may not be charged directly to the microbes, but rather to their soluble products, which have been well studied by Gaspard, Panum, Bergmann, and others. It is in these cases that examination of the effused fluids does not reveal the infectious agents.

3. The complications may be due to other microbes than those of the primary affection, which, finding an avenue of entrance, proliferate in the synovial fluid. These are the secondary infections now well investigated (Roger, *Gazette des hôpitaux*, 1890), and which, according to Charrin (*Les infections secondaires, Journal de pharm. et de chimie*, 1889), result in a penetration into the organism of "a second microbe, which adds its influence to that of the first."

The latter and most recent theory explains how erysipelas, due to the streptococcus of Fehleisen, can, for example, complicate typhoid fever, due to the bacillus of Eberth.

Ordinarily the effusion into the joints remains serous, but it may become purulent. The affection shows a predilection for the knee-joints, probably because these articulations are more exposed to external influence, more constantly used, and have a much larger lymphatic circulation. Still, it may be said, that the true cause of the predilection is unknown. In these articular affections the prognosis is usually good, but recovery is often slow. In some cases the salicylates have been successful.

Dr. Lyonnet draws the following general conclusions from the facts which he has investigated:

1. The articular complications of diphtheria are very rare, but we cannot deny their existence, since undoubted cases have been reported (Pauli, Bokai, Eichorst, Henoch, and Dauriac).

2. These complications are usually due to secondary infection. They are, then, acute or subacute inflammations, ordinarily serous, sometimes purulent. They appear, either in the course of, or oftener, during convalescence from, diphtheria.

3. Together with these arthritides there exist periarticular trophic disturbances due to a nervous lesion. There is hyperplasia of the tissues of the region occurring after multiple symptoms of poisoning of the nervous system, and a long time after the beginning of the sickness.—*Lyon Medical*, January 4 and 11, 1891.

REVIEWS.

TWELVE LECTURES ON THE STRUCTURE OF THE CENTRAL NERVOUS SYSTEM, FOR PHYSICIANS AND STUDENTS. By DR. LUDWIG EDINGER. Second revised edition. Illustrated. Translated by W. H. Vittum, M.D. Edited by C. Eugene Riggs, M.D. F. A. Davis, 1890.

To all students, and to most physicians, the study of the anatomy of the higher nervous system, particularly in relation to its various functions, is most difficult, chiefly because so many names are applied to the same thing as to produce much confusion. If one turns to a work on physiology he may, perhaps, find one or two illustrations which will aid him in his studies, but on the next page he will find others which hopelessly confuse him, and perhaps, lead him to wrong conclusions.

Edinger's lectures, published in book form, probably give the best series of both crude and diagrammatic illustrations that have yet been placed before the profession, and the text which accompanies them, having felt the touch of Dr. Eugene Riggs, of St. Paul, is sufficiently clear to aid the reader in acquiring the meaning of the various German words with which the cuts are largely dotted. The marking of the various tracts and other portions of the nervous system with the terms which are used by our German colleagues is certainly a mistake in a book in which the text is English, and necessitates a small vocabulary being attached to each picture. In other instances figures occur, which in the original probably referred to sentences in the text, but which have no reference in the American edition. With the exception of these faults, we have nothing to say except in praise, and we congratulate Dr. Riggs and Dr. Vittum upon their valuable contribution of German literature to the library of American physicians.

AN ILLUSTRATED ENCYCLOPÆDIC MEDICAL DICTIONARY: BEING A DICTIONARY OF THE TECHNICAL TERMS USED BY WRITERS ON MEDICINE AND THE COLLATERAL SCIENCES, IN THE LATIN, ENGLISH, FRENCH, AND GERMAN LANGUAGES. By FRANK P. FOSTER, M.D., with the Collaboration of Eleven other Physicians. Vol. II. D. Appleton & Co., 1890.

THE second volume of this enormous work has just appeared, and presents all the features which caused both praise and blame to be attached to Volume I. The praise should, in this instance, be directed to the editor and his assistants, who have compiled so far the most exhaustive of dictionaries; while the blame, if it is proper to use such a word, is deserved by reason of the unwieldy manner in which the material is presented to the reader. This fault is, nevertheless, a necessary one in a reference book so complete in every detail.

A special characteristic is the lucidity of the definitions, which are not only clear, but sufficiently complete to really give one some information. This is the chief fault of several of the dictionaries, both large and small, which have appeared of late, for in many instances they are so cross-referenced as to be of little real service. Another advantage is the close resemblance of Foster's Dictionary to Webster or Worcester in respect to the methods employed in giving the pronunciation and etymology of words, while these standard works are

surpassed by the insertion of all words used in the discussion of medicine, botany, or their allied sciences. Hundreds of words in our own tongue startle the reader at the thought that he has not heard of such terms before, and every page presents a mine of wealth to its fortunate possessor. The illustrations are particularly well executed, and the publishers' work cannot be surpassed.

With this brief notice of one of the most stupendous tasks which medical men have ever set themselves to complete, the reader must be satisfied. To criticise the volume would be both beyond our ability and a work of supererogation; and if the eagle eye of some devotee of etymology can discover in the mass of information food for just criticism, his task is but an ungracious carping which will be buried in the splendor of a great literary achievement.

The thoroughness of the work prevents its rapid appearance before the purchaser, and has caused rival firms to state, with some show of fact, that the volumes would never be completed. This unfortunate occurrence will not take place, but we hope that the rest of the dictionary will be more rapidly finished. The second volume includes from "Cac" to "Fasay," and is made up of 1544 double-column pages.

A LABORATORY MANUAL OF CHEMISTRY, MEDICAL AND PHARMACEUTICAL. By OSCAR OLDBERG, PH.D., and JOHN H. LONG, Sc.D. Illustrated; second edition, revised and enlarged. Chicago: W. T. Keener, 1891.

THE title of this work of 459 pages indicates exactly what will be found between its covers, for it is only of value to the physician who is interested in making tests in a private laboratory, or to the student of medicine and of pharmacy, who is taking a course in chemistry. The book is copiously illustrated for the purpose of showing how various pieces of apparatus are to be employed, and contains, among other things, tables showing the approximate solubilities of a large number of drugs both in alcohol or water. Lists of apparatus which will be needed by everyone who is about to fit up a laboratory for private use are given, and a long list of re-agents and test solutions is also inserted. The type is large and the paper is good, while the reputation of the authors assures the purchaser that he will obtain a useful guide. The only thing that we find to object to is the employment of such ancient terms, as "aqua regia" and "oil of vitriol," which have long since passed out general use with scientific men.

NEWS ITEMS.

Health of New York State in 1890.—The New York State Board of Health has prepared its mortality sheet for 1890, giving the totals by eight districts, by months, and by certain principal causes. The deaths numbered 116,830, in an estimated population of 6,000,000, which, with certain corrections for non-reported mortality in some rural sections of the State, makes a death-rate of 19.6 per 1000. The mortality in the first half-year was greatly exaggerated by epidemic influenza, from which cause alone it is estimated that 5000 deaths took place. Many deaths from this disease were certified to under

the head of acute respiratory causes, so that this group has had to be credited with a mortality of 18,000, which is abnormally high in comparison with the corresponding totals of recent years. Smallpox caused only four deaths, while scarlet fever showed a decline of about 30 per cent. Diphtheria also showed a moderate decline, while measles was marked by an increase. From consumption there were 13,800 deaths, a smaller proportionate mortality than has been reported during the past five years. Cancer caused 2868, old age 5484 deaths.

Mortality in Chicago.—The report of the Chicago Health Department for the last year shows that during 1890 there were 21,856 deaths, making a percentage based upon a population of 1,200,000, of 18.21 per one thousand. Of the deaths 9.95 per thousand were in children under five years of age, and seven in persons older than one hundred years. *La grippe* directly caused 112 deaths, but pneumonia and other complications with the influenza swelled the number of victims of this class of diseases. Pneumonia carried off 2073; consumption, 1972; bronchitis, 1189; typhoid fever, 1008; scarlet fever, 193; malarial fever, 121; whooping-cough, 201; murder, 77; suicide, 206; delirium tremens, 114; and hydrophobia, 2. The total number of deaths from tubercular diseases was 2231.

Railway Surgeons.—It is only ten years since the first organization of the surgeons of railroads was attempted in the formation of an association of the medical officers of the Wabash railway. This example was slowly followed along the great lines of traffic until it became possible to form the large and influential National Association. This voluntary union has resulted not only in an improved status of the surgeons themselves, but also in an increased efficiency of the medical service along the lines. The importance of this branch of the railway service seems to be fitly recognized in the establishment of a department devoted to railway surgery in the *Railway Age* of Chicago, under the able supervision of Dr. Harvey Reed, of Mansfield, Ohio.

Warren Triennial Prize.—The Warren Triennial Prize was founded by the late Dr. J. Mason Warren in memory of his father, and his will provides that the accumulated interest of the fund shall be awarded every three years to the best dissertation, considered worthy of a premium, on some subject in pathology, surgery, or pathological anatomy; the arbitrators being the Physicians and Surgeons of the Massachusetts General Hospital.

The subject for competition for the year 1892 is on some special subject in physiology, surgery or pathology.

Dissertations must be legibly written, and must be suitably bound so as to be easily handled. The name of the writer must be enclosed in a sealed envelope, on which must be written a motto corresponding with one on the accompanying dissertation.

Any clue given by the dissertation, or any action on the part of the writer which reveals his name before the award of the prize, will disqualify him from receiving the same.

The amount of the prize for the year 1892 will be \$500.

In case no dissertation is considered sufficiently meritorious, no award will be made.

A high value will be placed on original work.

An Army Medical Board will be in session in New York City, N. Y., during April, 1891, for the examination of candidates for appointment in the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before April 1, 1891, for the necessary invitation, stating the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from whence they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal knowledge, from at least two physicians of repute, as to professional standing, character, and moral habits. The candidate must be between twenty-one and twenty-eight years of age, and a graduate from a regular medical college, as evidence of which, his diploma must be submitted to the Board.

Further information regarding the examinations may be obtained by addressing the Surgeon General U. S. Army, Washington, D. C.

C. SUTHERLAND,
Surgeon General U. S. Army.

The following is the general plan of the examination:

I. The physical examination will be rigid; and each candidate will, in addition, be required to certify "that he labors under no mental or physical infirmity, or disability of any kind, which can in any way interfere with the most efficient discharge of any duty which may be required."

II. Oral and written examinations on subjects of preliminary education, general literature, and general science. The Board will satisfy itself by examination that each candidate possesses a thorough knowledge of the branches taught in the common schools, especially of English grammar, arithmetic, and the history and geography of the United States. Any candidate found deficient in these branches will not be examined further. The examination on general science will include chemistry and natural philosophy, and that on literature will embrace English literature, Latin, and history, ancient and modern. Candidates claiming proficiency in other branches of knowledge, such as the higher mathematics, ancient and modern languages, etc., will be examined therein, and receive due credit for their special qualifications.

III. Oral and written examination on anatomy, physiology, surgery, practice of medicine, general pathology, obstetrics and diseases of women and children, medical jurisprudence and toxicology, materia medica, therapeutics, pharmacy, and practical sanitation.

IV. Clinical examinations, medical and surgical, at a hospital, and the performance of surgical operations on the cadaver.

Due credit will be given for hospital training and practical experience in surgery, practice of medicine, and obstetrics.

The Board is authorized to deviate from this general

plan whenever necessary, in such manner as it may deem best to secure the interests of the service.

The Board reports the merits of the candidates in the several branches of the examination, and their relative merit in the whole, according to which the approved candidates receive appointments to existing vacancies, or to vacancies which may occur within two years thereafter. At the present time there are five vacancies to be filled.

An applicant failing in one examination may be allowed a second after one year, but not a third.

No allowance is made for the expenses of persons undergoing examination, but those who are approved and receive appointments are entitled to transportation in obeying their first order assigning them to duty.

Operative Treatment of Chronic Disease of the Uterine Appendages.—The following letter from Williams and Champneys, which appears in the *British Medical Journal* of February 7, 1891, touches upon a subject of great interest to us all, and of peculiar interest to our English cousins. The vagaries of Lawson Tait, and his utter disregard of facts when he makes statements, coupled with his indiscriminate operative tendencies, should aid very greatly in the acceptance of the views advanced by these progressive representatives of British gynecology:

"The recent discussions on the diseases of the uterine appendages at the Medical Society and elsewhere have brought this subject prominently before the profession.

"Affections of the uterine appendages are nothing new; they are comprised under the name pelvic peritonitis, or perimetritis; and since the writings of Bernuzzi in 1860-62, it has been well known, though not until lately current, that in a large number the route and sometimes the focus of infection have been the tubes.

"A change in nomenclature has arisen, for words ending in "salpinx" have displaced the older and more general names. Yet further changes have arisen in practice in some quarters, in that these affections have become the objects of innumerable operations. Now perimetritis is probably the very commonest of all the serious diseases of women. It is also perfectly certain that the great majority of cases get quite well without any operation. We are far from denying that exceptional cases call for surgical procedures, or that cases of prolonged suppuration of the pelvis are properly treated by the application to them of ordinary surgical principles. But this wholesale resort to a mutilating operation, advocated by several speakers at these discussions, calls for serious consideration by the profession. We have both been in charge for many years of the obstetric and gynecological departments of two of the great general hospitals of London, besides private practice. During that time thousands of patients have passed through our hands, and a very large number of cases of pelvic inflammation. We have on the rarest possible occasions resorted to removal of the appendages, and never unless life seemed to be threatened, or the health had been greatly impaired for many months. We never have sent patients away after a course of Epsom salts, 'and when this drug fails have folded our hands, and expressed the deepest sympathy with the sufferer.' On the contrary, our patients have generally got well by the use of patience

on their part and on ours. If, after a long course of patient treatment, it has seemed to us imperative to operate, we have been ready to do so, and have done so in rare instances. Without patience, many women, who have had matting of the pelvic organs for months, but who have perfectly recovered and have borne children, would have had their uterine appendages removed.

"Statistics on matters of this kind are often given in a manner which does not bring out important points. For instance, in the discussion at the Medical Society, it would have been interesting to know (1) the total number of women seen during the period embraced by the table, and (2) the total number of cases of perimetritis or pelvic inflammation among them. Statistics without these facts may give information as to the chances of the operation; those indicated would give the chance of being operated upon.

"A plea for patience is to be found in the declaration of the operators that 'the full benefits of the operation are not usually felt for months or years after.' If the operator would exercise this patience before the operation, there might be the less need for its exercise by the patient after the operation. To operate after a 'couple of months' is, in our opinion, quite unjustifiable in chronic cases, or in any except those of peril to life. To remove the ovaries in cases of congenital ill-development with dysmenorrhœa and sterility and anteflexion of the uterus, is a proceeding we have never seen necessary to recommend.

"Death from disease of the appendages is of extreme rarity, but the mortality after the operation is considerable. It is inconceivable to us that this amount of operating is justifiable, and we beg to protest in the strongest manner against it.

"This particular operation has already furnished material for legal proceedings in a well-known case. It is conceivable that it might form the object of legislation. We cannot think that the good sense of the profession can fail to be roused against it. The sooner the better. There are several other questions requiring an answer, some of which have been referred to by others; for instance, What were the results in the unreported cases? What are the dates of the reported cases? What were the results in general surgery at the Waterloo Bridge Road Hospital during the time of the unreported cases? These are questions concerning the authorities of that hospital. But we prefer to keep to our point, and to repeat our protest against the removal of the appendages whenever a tumor of them is found accompanied by pain and haemorrhage; or a dilated tube; or affections of the tubes with tender or even enlarged ovaries, after treatment has been tried for a couple of months; or when a woman suffers from pelvic pain, dysmenorrhœa, or dyspareunia, after one or more attacks of pelvic inflammation; or in cases of ill-developed ovaries with anteflexion and dysmenorrhœa; or in cases of cardiac dyspnoea; or of tubercular disease of the tubes associated with similar disease of other organs; or in neurotic women without disease of the appendages. We protest against the view that any one of the above conditions diagnosed before, or discovered during or after, an operation, is in itself a justification for the removal of the uterine appendages; and such practice is, in our opinion, highly injurious to women and to the profession. In no other department

of surgery is inflammation of an organ considered to justify its removal."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 10 TO FEBRUARY 16, 1891.

By direction of the Secretary of War, CHARLES C. BYRNE, Lieutenant-Colonel and Surgeon, is relieved from duty at Fort Sam Houston, Texas, and will report in person to the commanding general Department of the Columbia, for duty as Medical Director of that Department, relieving Bernard J. D. Irwin, Colonel and Surgeon. Colonel Irwin, on being relieved by Lieutenant-Colonel Byrne, will proceed, via San Francisco, California, to St. Louis, Missouri, and report in person to the commanding general Department of the Missouri, for duty as Medical Director of that Department, relieving Charles Page, Colonel and Assistant Surgeon-General. Colonel Page, on being relieved by Colonel Irwin, will report in person to the commanding general Division of the Atlantic, for duty as Medical Director of that Division.—Par. 6, S. O. 36, A. G. O., Washington, D. C., February 13, 1891.

By direction of the Secretary of War, LOUIS M. MAUS, Captain and Assistant Surgeon, is relieved from further duty at Fort Stanton, New Mexico, and will report in person to the commanding officer Whipple Barracks, Arizona Territory, for duty at that station, relieving Richard W. Johnson, Captain and Assistant Surgeon. Captain Johnson, on being relieved by Captain Maus, will report in person to the commanding officer, San Carlos, Arizona Territory, for duty at that station.—Par. 7, S. O. 35, A. G. O., Washington, D. C., February 12, 1891.

JOHNSON, R. W., Assistant Surgeon.—Is granted leave of absence for one month, to take effect on or about February 10th, instant.—Par. 1, S. O. 16, Department of Arizona, Los Angeles, California, February 4, 1891.

WOLVERTON, WILLIAM D., Major and Surgeon.—Is granted leave of absence for one month, to take effect on or about February 15, 1891.—Par. 2, S. O. 15, Department of the Platte, Omaha, Nebraska, February 7, 1891.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING FEBRUARY 14, 1891.

AUZAL, E. W., Passed Assistant Surgeon.—Detached from the U. S. S. "Boston," and ordered to the U. S. S. "Lancaster." CRAIG, T. C., Passed Assistant Surgeon.—Detached from the U. S. S. "Vesuvius," and ordered to the U. S. S. "Boston."

BRAISTED, W. C., Assistant Surgeon.—Detached from Hospital, Hot Springs, and ordered to the U. S. S. "Vesuvius."

FITTS, H. B., Passed Assistant Surgeon.—Ordered to the Army and Navy Hospital, Hot Springs.

ARNOLD, W. F., Assistant Surgeon.—Ordered to the U. S. Receiving-ship "Vermont."

BLACKWOOD, N. J., Assistant Surgeon.—Detached from the U. S. S. "Vermont," and ordered to the U. S. S. "Newark."

ASHBRIDGE, RICHARD, Passed Assistant Surgeon.—Ordered to the Navy Yard, New York.

NORTH, J. H., Assistant Surgeon.—Detached from the Navy Yard, New York, and ordered to the U. S. S. "Lancaster."

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will be liberally paid for upon publication, or 250 reprints will be furnished instead of payment, provided request for reprints be noted by author at top of manuscript. When necessary to elucidate the text, illustrations will be provided without cost to the author.

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